MERGERS AND ACQUISITIONS BETWEEN TAIWANESE ENTERPRISES

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DECLARATION

I declare that this thesis has been composed by KUO-CHENG KUO and that the research reported here has been conducted by KUO-CHENG KUO unless otherwise indicated.

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ABSTRACT

In recent years merger and acquisition (M&A) activities have increasingly claimed the attention of government officials, company management and the public in Taiwan. The primary purpose of this study is to examine merger motives and methods of payment and to compare the pre- and post-transaction performance of Taiwanese enterprises. The samples of mergers and acquisitions in Taiwan analysed in this study are relatively comprehensive and are the largest which have ever been collected for academic research. So the conclusions of this study have much greater validity than those found in previous work carried out on Taiwanese mergers.

In brief, securing operational synergies is a very important merger motive for firms of all sizes. Large enterprises are motivated to take-over other firms by the desire to acquire market share while increasing corporate debt capacity or financing was more important for small acquiring enterprises than for large ones. Payment is made either by means of a cash offer or by an exchange of shares depending on tax and government regulations, the future prospects of the acquiring enterprise as perceived by the acquired enterprise's shareholders and the level of activity of the stock market. The results indicate that large and medium-sized acquiring enterprises achieve greater increases in their post-transaction operational and financial performance than do small and small-medium sized acquiring enterprises. The results of logit analysis indicate that profitability and changes in profitability are important variables for discriminating between acquired and non-acquired firms. The findings mean that firms with lower profitability have a significantly increased probability of being taken-over, but that smaller firms do not see a significant increase in the likelihood of being acquired. This implies that take-over discipline is strong for low profitability firms but is not strong for small firms. The take-over threat forces firms to improve their profitability rather than to increase their size. The empirical evidence as to the nature of the take-over mechanism of acquired firms supports the traditional theory of the firm.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO, AND MOTIVATION FOR, THE STUDY

With 20 million people living in 36,000 square kilometres, Taiwan is one of the most densely populated areas of the world.[1] The average economic growth rate between 1953 and 1990 was 8.7%.[2] In 1990, the per capita gross national product was US $ 8,111 and the gross national savings rate was 29.33%.[3] In combination, these features of the Taiwanese economic landscape offer enterprises opportunities to expand. The nature of the tax system means that enterprises are likely to consist of many small companies so as to minimise income tax liability. For example, the operational net income tax rate on enterprises was up to 50% for the largest companies in 1953. When these tax advantages do not apply (e.g. operating income before income tax above NT$ 100,000 pay 25% corporate income tax in 1990)[4], different firms in the same business group typically apply for the merger. In 1990, there were 818,061 enterprises and 97.16% of them could be classified as small or medium sized.[5]

Following the Uruguay Round Trade Talks agreement of 1994, the World Trade Organisation (WTO) was set up in January 1995 to replace the General Agreement on Tariffs and Trade (GATT) so as to further the liberalisation of international trade. After many years of Taiwanese economic development and capital formation, the scale of Taiwanese enterprises has gradually enlarged. The stock market has developed significantly. As enterprises face stronger domestic and international competition, the operational environment has become very challenging. To encourage small and medium size companies to merge or consolidate so as to promote more efficient managerial and operational practices, the government currently offers many tax benefits to profit-seeking enterprises (Article 13 of the Statute for Upgrading Industries).

Between 1990 and 1995, the Taiwanese economy experienced a period of fluctuating development following many years of economic growth. In recent years merger and acquisition (M&A) activities have increasingly claimed the attention of government officials, company management and the public. The government favours larger business units in the belief that this will help the economy in the face of growing international competition. Business managers look to acquiring firms to increase their firm's size as the least costly method of securing external growth. Shareholders of acquired and acquiring firms hope to profit from these transactions. Mergers and take-overs are flourishing and have considerable significance and importance. Despite this few studies have been conducted to research and explain this kind of activity.

Almost all previous empirical research has focused on descriptive characterisations of merger motives and the post-transaction performance of Taiwanese enterprises using univariate tests on limited samples. Wu, C. M. (1984)[6] and Chen, C. R. (1990)[7] used a case study (one or two cases) to analyse merger motives. The results of course, are specific and can not be applied to the population as a whole. Huang (1977)[8], Chang (1980)[9], Wu, Y. C. (1982)[10] and Lin (1990)[11] used questionnaires to collect data but the questions were not based on theories of motives for mergers and acquisitions so that it is difficult to use the results to validate the theory. Most of the studies have not used inferential statistical tests to examine the generality of their results. The findings of the studies are sometimes unclear and sometimes contradictory.

The motives for mergers and acquisitions are a very important issue. Many merger motives are presented, and some of them have perplexed economists and the general public for many years. Can we identify the structures underpinning the motives for mergers and acquisitions so as to elucidate some of their fundamental factors? The preferred method of payment is one of the important considerations shaping how mergers and acquisitions are negotiated. However, very few Taiwanese studies

address this issue. In addition, the previous literature relating to performance comparisons between acquired and/or acquiring firms has not considered the implications for the theory of the firm. As a result there are difficulties in gauging the efficiency of the merger and take-over mechanism. Thus there is a need for a more rigorous and complete investigation into merger and take-over activities amongst Taiwanese enterprises. This study attempts to advance previous empirical research by means of a comprehensive questionnaire survey and the analysis of financial data relating to a very large sample of companies involved in acquisitions. It examines merger motives, methods of payment, and the pre- and post-transaction performance comparisons of Taiwanese enterprises. Unlike most previous studies it uses both univariate and multivariate analyses. As far as is known, the samples analysed in this study are the first comprehensive samples of mergers and acquisitions in Taiwan that have ever been collected for academic study. The databases are thus the largest ever assembled by a considerable margin and so allow particular insights into the motives and effects of mergers and acquisitions in Taiwan. The result is that the conclusions of this study have much greater validity than any previous work carried out on Taiwanese mergers by any other researcher.

1.2 THE SCOPE AND OBJECTIVES OF THE STUDY

Why should one team of managers wish to take-over the resources of another firm? A number of hypotheses have been proposed to explain why mergers and acquisitions occur. The principal ones relate to efficiency, information and signalling, free cash flow, market power, tax considerations, and to agency problems. Do all of these hypotheses apply to Taiwan? Does Taiwan possess some special and unique characteristics which contribute to shaping the mergers and acquisitions process? For example, previous empirical studies indicate that tax considerations are not a statistically significant merger motive for Taiwanese enterprises (Chang, 1980[12]; Wu, Y. C. 1982[13]; Lin, K. C., 1990[14]; Li, L. C., 1991[15]; Wu, A. N., 1992[16]; Yang, 1996[17]). This is a puzzling finding. If firms are not motivated by tax considerations, why then do they apply for special governmental approval for merger and consolidation? If

they are not overly concerned with obtaining tax exemptions or deductions, they can always merge without governmental say-so and so save themselves the time and resources needed to get approval. There are many motives or factors which may influence the decision to merge. Fang (1990)[18] and Lin (1990)[19] separately find four main dimensions which relate to the motives or reasons for mergers and acquisitions of Taiwanese enterprises over the periods 1979-1988 and 1985-1989. Can we identify the same or different fundamental constructs to explain merger motives in association with other variables? To what extent does each variable affect the acquisition decision? These are questions that are ripe for research.

In the negotiation of a proposed merger or take-over, one of the most important considerations is the main method of payment. The final choice influences the returns to the stockholders of both the acquiring and acquired firms. Previous empirical research focuses mainly on a comparison of stockholders' returns between acquiring and acquired firms (Jensen and Ruback, 1983[20]; Jarrell, Brickley, and Netter, 1988[21]; and Trifts, 1991[22]) or on the method of payment (e.g. cash offer or stock exchange) which generally results in larger excess returns (Wansley, Lane, and Yang, 1983[23]; Huang and Walkling, 1987[24]; Travlos, 1987[25]; Wansley, Lane, and Yang, 1987[26]; and Franks, Harris, and Mayer, 1988[27]; Peterson and Peterson, 1991[28]; Trifts, 1991[29]; Lo, 1991[30]; Sung, 1993[31]). Based on the main methods of payment, this study aims to extend the analysis to consider the firms' pre-transaction sizes, changes in assets, and the association between the main methods of payment and the estimated values of the acquired enterprises. The aim is to further our understanding of the characteristics of Taiwanese enterprises' mergers and acquisitions.

Theoretically speaking, mergers and take-overs are an important mechanism in capitalist economies. It is alleged that the threat of a merger or take-over forces managers to improve their performance and hence to achieve better profitability (Manne, 1965[32]; Marris, 1963[33]). A merger or take-over offers a company an excellent opportunity to restructure its organisation and to reallocate its resources. This may improve the efficiency and profitability of the combined company. Thus, we

need to understand the characteristics of mergers and take-overs in Taiwanese enterprises prior to their completion. This study focuses on two main issues. Firstly, the nature of the merger and take-over selection process is analysed. Do the target firms differ from the bidding or non-transaction ones in terms of size, profitability and liquidity? Secondly, does the merger and take-over mechanism conform to the theory of profit maximisation? If the theory cannot explain the occurrence, can we draw on other theories or assumptions to properly account for the empirical results?

The combination of two companies poses many questions about the post-transaction performance of the company. When a bidding firm merges with another company, is its post-transaction performance better than its previous performance? On average, large enterprises have greater capital, higher production scales and greater market share. Thus, they have better opportunities than small firms to improve their operating performances. Does the size of a company's assets influence its post-transaction performance? If bidding and target firms are in the same business group, the terms of a transaction are easier to achieve than if they are not (Fang, 1990).[34] Does the ease of forging a contract within a business group result in better or worse post-performance than for a firm which does not belong to the same group?

Shelton (1988)[35] finds that related-supplementary or identical business mergers provide significant chances for value creation whereas unrelated mergers offer the least opportunities to generate value. Fang (1990)[36] and Yang (1996)[37] show that horizontal transaction enterprises have much better post-transaction performance than other types of transactions in Taiwan. However, Singh and Montgomery (1987)[38] indicate that acquiring firms which engage in related acquisitions do not have significantly or abnormally higher returns than firms in unrelated acquisitions. Agrawal et al. (1992)[39] consider that non-conglomerate mergers result in significantly inferior performance than conglomerate mergers over the post-merger period. However, Jensen (1986)[40] argues that conglomerate mergers are less likely to succeed because the acquiring firm's managers are not familiar with their acquired firm. Is

there any relationship between the type of a merger or take-over and the post-transaction performance in Taiwanese enterprise?

Even though managers can invoke any number of reasons as to why they need to acquire another company, do these arguments justify all transactions? Some merger motives make economic sense but a few seem more dubious. This study aims to relate the importance of different motives for mergers and acquisitions to resulting post-transaction performance to tease out the empirical reality. The differential efficiency theory assumes that if the bidding firm enjoys superior operating achievements relative to the target firm, and if the target firm's operating achievements are improved up to the level of the bidding firm following the transaction, then efficiency will be increased by the merger. Can we indicate a significantly positive correlation between the pre-transaction performance of acquiring firms relative to acquired firms and the post-transaction performance of Taiwanese enterprises?

Mitchell (1988)[41] finds that a clash of corporate cultures is the first and most important reason why mergers fail. The other reasons are because the target firm's top management quits and the company has been bought at the wrong time in its corporate life cycle, etc.. Lin (1990)[42] shows assets and goodwill valuation and corporate integration are the most difficult problems during the transaction process period. We try to answer questions such as how many transaction process problems are encountered over the course of the acquisition? Which of these teething problems are most significant? How do they have a measurable impact on the post-transaction performance? These issues are interesting to explore, and are described separately in the chapters that follow.

1.3 DEFINITION OF TERMS

In this study the terms "merger", "acquisition" and "take-over" are used interchangeably. However, for some purposes, it is necessary to distinguish among these forms of business combination.

Merger: The combination of two or more firms to form a single firm, such that only one of the firms continues to exist after the combination (Articles 317 and 398 of Company Law).

Consolidation: The combination of two or more firms to form a single firm, such that all the firms are dissolved with the combination and a new company is incorporated instead (Articles 317 and 398 of Company Law).

Acquisition of Stock: A corporate acquisition of stock is the purchase by one company (the bidder or acquiring firm) of all, or a substantial part of, the securities of the target firm.

Acquisition of Assets: A corporate acquisition of assets is the purchase by one company (the bidder or acquiring firm) of all, or a substantial part of, the assets of the target firm (Article 185 of Company Law).

Takeover: The acquisition, including stock and assets, of one company by another.

Horizontal transaction: A combination of two or more firms that produce the same type of good or service.

Congeneric transaction: A combination of firms within the same general industry, but for which no customer or supplier relationship exists.

Vertical transaction: A combination between a firm and one of its suppliers or customers.

Conglomerate transaction: A combination of companies coming from totally different industries.

Business group: A group of interrelated companies which normally consists of one parent company and a number of subsidiary and/or associated companies which are partially owned by the parent company.

1.4 ORGANISATION OF THE STUDY

The framework of this study is arranged as follows. This first chapter is the introduction which includes the background, motivation, scope and objectives of the study, definition of terms, and the organisation and contribution of the study. Chapter 2 explains the research sample and design which include research sample, data collection, questionnaire and experimental design, pilot work, and questionnaire survey. The third chapter describes the characteristics of Taiwanese acquiring and acquired enterprises. In this and the following five chapters data collected by means of questionnaires are analysed. The third chapter outlines the data collected including the industrial classification of merging firms, transaction years, business group, form of merger and acquisition, type of transaction, proportion of transactions which are friendly, and total assets before or after each transaction.

Chapter four focuses on the theoretical and empirical literature relating to the motives for mergers and acquisitions. It considers alternative theoretical rationales for mergers and acquisitions in terms of efficiency theories, information and signalling, market power, tax considerations, stock market consideration, agency problems and free market flow. In the fifth chapter the empirical study of the motives for mergers in Taiwanese enterprises is outlined. The primary aim of the chapter is to explain the relative importance of the different motives held by acquiring firms for their transactions (classified both as four subgroups and as a totality), the motives classified by business group and type of transaction, the correlation between the importance of the motives and the size of the acquiring enterprises before each transaction and the change in assets after the merger. Finally, a factor analysis of all variables relating to the motives for mergers is

analysed. In chapter 6, details of the main methods of payment for mergers and acquisitions are given. This covers, firstly theoretical and empirical studies of methods of payment for mergers and acquisitions, secondly the differences between the pre-transaction sizes of acquiring firms and different methods of payment, and thirdly the differences between the increase in assets after transaction and the method of valuation of the acquired enterprise, for different methods of payment.

Chapters 7 and 8 explore the post-transaction performance of acquiring enterprises using univariate and multivariate analysis, respectively. They contain the post-transaction performance of acquiring enterprises classified by size, business group and type of transaction. They deal with the correlation between the motives for merging and post-transaction performance; the correlation between the pre-transaction performance of the acquiring enterprise relative to that of the acquired enterprise and the post-transaction performance of the acquiring enterprise; and the relationship between transaction process problems and post-transaction performance.

Chapters 9 and 10 use the financial statement data set to discuss and compare pre-transaction size and performance. Chapter 9 includes a review of the relevant theoretical and empirical literature; variables, hypotheses and samples; independent and paired sample t-tests for average size and operating and financial performance over the year prior to the transaction year. In chapter 10, five logit models are used to examine firm size, profitability, liquidity and growth between acquired and non-acquired firms, between acquired and acquiring firms, between acquired and non-transaction firms, and between acquiring and non-transaction firms. Finally, conclusions are presented in chapter 11 including a consideration of the limitations of the research and suggestions for future research.

1.5 THE CONTRIBUTION OF THIS STUDY

This study, drawing on theoretical rationales for mergers and acquisitions, engages in empirical research into Taiwanese enterprises over the period 1990-1995. It attempts to further our understanding of mergers and take-overs using questionnaire data which has been collected from a relatively large sample of companies and using financial data relating to a large proportion of Taiwanese companies. Thus, this thesis makes the following contributions to the theoretical debate and also offers some suggestions to both enterprises and government departments.

1. The relatively large sample and the in-depth analysis resolve some of the puzzling features of tax and stock market considerations as they relate to Taiwanese enterprises, which other studies have not resolved despite many years of research. The results indicate that the merger motives of either securing a listing on the stock market or tax considerations were very important for only a few companies in Taiwan in the 1990s.

2. The relative importance of different motives for mergers varies with the size of the acquiring firms. The four subgroups identified by this study, classified by the size of their total assets before the transaction, provide further information about the merger motives of differently sized acquiring firms. In brief, securing operational synergy was a very important merger motive for firms of all sizes. Large enterprises were motivated to take-over other firms by the desire to acquire market share indicating that the Fair Trade Commission still needs to note or investigate whether the merger process has involved firms in any improper business activity as a consequence of their market standing.

Increasing corporate debt capacity or financing was more important for small acquiring enterprises than for large ones. These results are similar to those found in previous studies (Teng and Chen, 1979[43]; Liao, 1985[44]; Liu, 1993[45]; Li, Chen, and Chang, 1993[46]) i.e. that small acquiring enterprises encounter relatively greater financing problems than do large companies. Although the Statute for Development of Medium and Small Business is intended to help provide financial facilities, loans and

guarantees to medium and small businesses, smaller businesses still face significant financial hurdles. This indicates that the Statute for Development of Medium and Small Business is not completely successful in meeting its aims.

3. The results show that the cases and amounts of tax exemption (Business Income Tax, Stamp Tax, Deed Tax) due to implementation of the Statute for Encouragement of Investment or the Statute for Upgrading Industries were few between 1990 to 1995. The cases and amounts of Land Value Increment Tax were large but this tax can be deferred and is paid by the acquiring enterprise at the time the land is subsequently transferred. If the firm does not merge with another it cannot enjoy these tax benefits since the government only exempt the taxes payable when a merger has taken place. This policy is not a subsidy or tax reduction as such. The government takes a neutral role, overseeing a policy which is to ensure that resources are not wastefully distributed.

4. Where both the acquiring and acquired firm belong to the same business group, the acquiring firm is motivated by the wish to achieve operating synergy, tax advantages, free cash flow and improve management efficiencies. The results indicate that if firms belong to the same business group, they may have more and better information by which to accurately assess the merger's advantages. If they find the transaction is beneficial for the acquiring and/or acquired firms, the merger gets the go-ahead. If the acquiring and acquired firm do not belong to the same business group, the acquiring firm is more significantly motivated to increase its market power than are acquiring firms which belong to the same business group. This finding indicates that if firms do not belong to the same business group, their merger motive is chiefly concerned with the market power of Taiwanese enterprises. So the Fair Trade Commission still needs to observe the combination to judge whether it affects the interests of consumers and ensures fair competition.

5. A factor analysis of merger motives identifies that improving management efficiency, market control and new product introduction, finance and stock market

considerations are important constructs which affect acquisition decisions. These factors were not consistent with Fang's (1990), Lin's (1990) and Yang's (1996) results and this research helps us to understand the motives for mergers in Taiwanese enterprises over the period 1990-1995.

7. For Taiwanese enterprises' mergers and acquisitions the most common payment method was by 'common stock'. Payment is made either by means of a cash offer or by an exchange of shares depending on three considerations. The first consideration is tax and government regulations. The second consideration is the future prospects of the acquiring enterprise as perceived by the acquired enterprise's shareholders. The third consideration is the level of activity of the stock market. If a transaction involves equity securities, capital gains taxes may be deferred until the new securities are sold, while for cash transactions, all income should be paid in the year of the transaction (Article 14 of Income Tax Law). Thus, tax regulations will significantly affect the preferred payment method.

8. The average pre-transaction assets of the acquiring firms which used common stock as the main method of payment were significantly greater than those of the acquiring firms which used cash from reserves as the main method of payment. This indicates that (1) if acquiring firms have a greater value of assets, they prefer to use common stock as the main payment method or the shareholders of the acquired firms prefer to ask for a common stock exchange rather than a cash offer. (2) the acquired enterprise's shareholders perceive or predict that large acquiring enterprise may have better future prospects. (3) if the acquiring firm uses a cash from reserves as the main payment method, then as cash availability is limited so the bidding firm tends to be relatively small. This result implies that the pre-transaction assets of the acquiring firms will influence the method of payment.

9. The average change in assets of acquiring firms in each transaction using common stock as the main method of payment was significantly greater than that of acquiring firms using cash from reserves or cash from borrowings as the main method of

payment. This implies that the exchange of common stock offers greater funds to the acquiring firm in the acquisition of a new firm than does a cash offer.

10. On the issue of payment methods, there was a significant negative association between acquiring enterprises paying with cash from reserves and their using book value to estimate the value of their acquired enterprises. However, there was a significant positive association between payment with cash from reserves and the use of replacement cost and/or cash flow value as the valuation method. There was a significant positive association between the use of cash from borrowings to pay for the acquisition and the use of replacement cost and cash flow value to estimate the worth of the acquired enterprise. These findings imply that banks are highly likely to offer funds to acquiring firms if they use replacement cost value or cash flow value estimation method to gauge the value of the target.

Book value is not a good measure of the true value of a firm's assets because it is based on their historical cost. This value may drop far below actual asset values when there is rapid inflation and book value often overlooks the value of intangible assets. A book value estimation suggests an apparent underestimation of the value of the acquired firm so a target firm's shareholders is not likely to accept the cash offer. This result is similar to that found by Hansen (1987).[47] Hansen concluded that when a target firm knows its value better than a bidding firm does, the acquiring firm will prefer to use a share-for-share exchange rather than a cash offer. In contrast, the replacement cost value estimation is a more accurate indication of present market prices. In these circumstances, the target firm's shareholders are more likely to accept the cash offer.

11. The results indicate that large and medium-sized acquiring enterprises achieve greater increases in their post-transaction operational and financial performance than do small and small-medium sized acquiring enterprises. That is, the greater the size of the acquiring firm the better its post-transaction performance improvement will be. Why do large acquiring firms in Taiwan achieve better operational and financial

performances after the transaction? In general, large enterprises have greater capital, higher production scales and greater market share. Thus, they may have greater opportunities to achieve operational and financial synergies than small enterprises have. Considering operational synergy, most of the mergers and acquisitions in Taiwan are horizontal (see Table 3-6-1) so they are more likely than other types of merger to yield operational synergy. Large enterprises have greater capital so they find it comparatively easy to enlarge their production scale, obtain economies of scale and ensure more earnings per dollar of investment. In the case of financial synergy, large enterprises have better goodwill and credit so they find it comparatively easy to raise funds and increase their debt capacity, and even to gain lower interest rates from banks or the money market. Turning to marketing synergy, on the whole, one would expect that large enterprises have greater market share and market power, and so have greater opportunities for collaborative activity. The anticompetitive activities of mutual dealing or tie-in sales result in market power-related gains (Lorie and Halpern, 1970).[48] These results are similar to those found in a previous empirical study of Taiwan (Lin, 1990).[49]

12. The results indicate that if firms do not belong to the same business group, acquiring firms achieve better perceived performance improvement after the transaction than those which belong to the same business group. Lin (1990)[50] found a similar result but it was not statistically significant.

One possible explanation for these results is that if acquiring and acquired firms do not belong to the same business group, the acquiring firm is better able to replace inefficient managers, lay off unnecessary employees, and increase the market power after the transaction than those firms which belong to the same business group. Many members of a business group's management in Taiwan are made up of family or relatives. If one person is the chairperson or general manager of the large company, his/her family (spouse and children) or his/her relatives (brother or sister) will be amongst the management of the other small companies. These business group companies can help each other, especially with financial guarantees and assistance.

But if the family or relatives do not have the same or superior management ability, the small companies will display a performance consistent with poorer management. When firms merge, an acquiring firm can usually replace the incompetent managers but this is seldom the case when family or relatives are involved.

The other possible explanation for these results is that if acquiring and acquired firms do not belong to the same business group, the acquiring firm needs to raise the transaction money either from the firm's shareholders or from a bank or the money market so it has to present good reasons as to why the transaction is reasonable and profitable to the public, shareholders or the bank. If the transaction is approved by the shareholders or bank, it indicates that not only do the acquiring firm's managers believe in the reliability and profitability of this transaction but that this faith is shared by the shareholders, bankers and investors. These careful preparations and considerations increase the probability that the acquiring firm will achieve its goal and achieve a better post-transaction performance.

13. The results indicate that amongst Taiwanese enterprises horizontal post-transaction performance is much better than for transactions of other types. The results were similar to those found in previous empirical studies in Taiwan (Fang, 1990[51]; Yang, 1996[52]). A number of reasons are apparent for this behaviour. Firstly, it is easier for such firms to increase their sales or enlarge their services, to take advantage of economies of scale and to grab greater market share or market power than would be the case with conglomerate and vertical transactions. Secondly, the horizontal transaction firm's management are familiar with the products, distribution channels, production techniques and organisational characteristics. These managers are more likely to be able to exploit these advantages to improve their firms' levels of profit and profit rates than are the management of other transactions' firms.

14. About 11-14% and 14-16% of the acquiring firms indicated that their pre-transaction levels of profit and profit rate performances were inferior or very inferior to those of the acquired enterprises. Article 75 of Company Law states "A continuing

company or a new company created by merger or consolidation shall succeed to all the rights, powers and privileges of the merged or consolidated company". The Inland Revenue Service recognises that after the transaction the continuing company can cover its net losses for the preceding five years but it cannot absorb the net losses of the merged or consolidated company for the preceding five years.[53] Some companies utilising this net losses regulation, nominate the net losses company as the continuing firm and the net incomes company as the merged firm, so as to take advantage of the tax deduction. Soon after the transaction is completed, the acquiring firm (originally the net losses company) applies to change the company name to the acquired firm's name (originally the net incomes company) so as to trade with the better and/or more famous company name. The Inland Revenue Service knows of this manoeuvre but does not want to change its regulations. It is afraid of losing revenue if the net incomes company should always try to acquire a net losses company to exploit the tax deduction advantage. This explains why 11-14% and 14-16% of acquiring firms' pre-transaction levels of profit and profit rate performances are inferior or very inferior to those of acquired enterprises.

15. The more important the motive of increased market power the more likely it is that the acquiring firm will enjoy superior net sales, gross profits, and price/earning ratio performance after the transaction. A firm can increase its market share after a horizontal merger. Increasing market share means increasing the size of the firm relative to other firms in an industry. This result indicates that the combined firm can exercise its influence over the price and output in a particular market. Samuels et al. (1994)[54] mention that the higher the level of concentration in an industry, the greater are the levels of profit. If a firm can dictate the conditions of the sale of its product or it has the ability to act as a price leader, or it can deter other firms' entry, or is able to make persistent super-normal profits, then it is highly likely to increase its net sales, gross profits and its price/earning ratio performance after the transaction. The results are consistent with the conclusions of Singh and Montgomery (1987)[55] and Seth (1990)[56] who found that increased market power can earn super normal profits.

16. The results of this study show that having merger motives of acquiring brand marks, patents or copyright technologies and of combining complementary resources negatively affect the chance that the acquiring firm will achieve superior post-transaction operating income performance and vice versa, i.e. as those particular motives become less relevant, the likelihood of improved post-transaction performance increases. The results indicate that when the acquiring firm wishes to exploit the brand marks, patents or copyright technologies of the acquired firm, it does not achieve its expected gains. Sales and administrative expenses and/or research and development costs may increase rather than decrease and so result in poorer operating incomes. The same outcome may be experienced by the acquiring firm when its motive is to combine complementary resources but it cannot achieve its expected goal. This may result from an over-optimism in evaluating the merger's advantages and/or an overestimation of the value of the brand marks, patents or copyright technologies and of combining complementary resources. Roll (1986)[57] points out that if there are no gains in acquisition, hubris provides an explanation as to why managers do not abandon these acquisitions or reflect on why their bids' valuation are wrong.

17. The analysis of the financial data indicates that acquiring firms are bigger and more profitable than their targets. The results match those found by Singh (1975) and Cosh et al. (1980 and 1989). This indicates that acquiring firms are normally large and profitable; they have sufficient funds or access to credit (e.g. borrowing from banks or financial institutions) to afford to merge with or take-over smaller and less profitable firms. The take-over mechanism can thus act as an efficient means by those firms who can effectively reallocate and make better use of resources. This situation is consistent with the theory of the firm with firms aiming to maximise profits.

The extraordinarily high average current ratio of the acquired firms indicates that they have relatively high current assets (or relatively low current liabilities) compared to those of non-transaction firms. The result indicates that managers would like to hold more net current assets within the firm. Greater levels of current assets in

the firm mean that managers have more resources under their control, and have little difficulty in paying their short term liabilities. At the same time, high current assets attracts raiders and may act as an important pre-condition for take-over. The relatively high liquidity (current ratio) may explain why acquired firms are easy targets for acquiring firms.

18. The results of logistic regression analysis indicate that profitability, and change in profitability are important variables for discriminating between acquired and non-acquired firms. The results mean that firms with lower profitability have a significantly increased probability of being taken-over, but that smaller firms do not see a significant increase in the probability of being acquired. This implies that take-over discipline is strong for low profitability firms but is not strong for small firms. The take-over threat forces firms to improve their profitability rather than to increase their size. Empirical evidence as to the nature of the take-over mechanism of acquired firms supports the traditional theory of the firm.

19. The result of logistic regression analysis also suggests that size is a significant variable in identifying the differences between acquired and acquiring firms, and is an important consideration in take-overs. Smaller size increases a firm's probability of becoming a target rather than an acquiring firm. This result is not consistent with Singh's (1975) finding. He found that size, followed by change in profitability and level of profitability were the most important discriminators between acquired and acquiring firms. The result is consistent, however, with the findings of Cosh et al. (1989). They found that size was the most important discriminator but that profitability was not significant in discriminating between acquired and acquiring firms. The traditional approach of the theory of the firm assumes that producers aim to maximise profits. The low profitability firm will be replaced by the high profitability firm. The empirical evidence about the nature of the take-over mechanism of acquired firms does not support the traditional theory of the firm.

20. Size and growth are important variables in distinguishing between acquiring and non-transaction firms in logistic regression analysis. The acquiring firms have significantly greater size and growth than non-transaction firms but profitability is not different. This indicates that the acquiring firm's managers would like to pursue growth rather than profitability. It may imply that the managers of the acquiring firm prefer to have greater power and influence in the company, earn prestige in the society and achieve self-actualisation, and satisfy shareholders need rather than increase profits. The phenomenon of the acquiring firm's managers just attempting to achieve a normal level of profitability but with a priority for increases in size and growth is more like satisficing behaviour and is consistent with the implications of managerial theories of firm e.g. Marris (1964)[58], Baumol (1959)[59], etc.

21. The results of logistic regression analysis indicate that curvilinear (non-linear) characteristics exist between acquired and non-acquired firms and between acquired and non-transaction firms, especially with regard to liquidity. This indicates that as a firm's liquidity increases, the likelihood of it being an acquired firm increases. However when a firm's liquidity reaches a large value, the likelihood of becoming an acquired firm will decrease. The possible explanations for the result are that: (1) The same business or family group. The high current ratio firms are controlled by the same business or family group so these firms have relatively high exemption to being taken-over. (2) No stock market listing or active market in the shares exists. The comparative high current ratio firms are not listed company or do not have an active market so bidding firm do not have opportunity to acquire their shares. (3) Government regulation or industrial requirement. The government regulates banks or other financial institutions which need to hold a high reserve ratio to ensure solvency.

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[1] Monthly Statistics of The Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, The Republic of China, No. 377, June 1997, p. 7.
[2] Taiwan Statistical Data Book 1994, Council for Economic Planning and Development, Republic of China, June 1994, p. 27. Monthly Statistics of The Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, The Republic of China, No. 377, June 1997, p. 7.
[3] Monthly Statistics of The Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, The Republic of China, No. 377, June 1997, p. 3.
[4] If the total taxable income of a profit-seeking enterprise is more than NT$ 100,000, the income tax rate on the portion of taxable income exceeding NT$ 100,000 is 25% (Article 5 of Income Tax Law, Amended on January 27, 1995).

[5] Small and Medium Enterprises White Paper 1995, Taipei, Taiwan, Republic of China: Ministry of Economic Affairs, November 1995, p. 356.
The medium & small businesses mentioned in this study are businesses and companies that are publicly recorded in accordance with the Law and are qualified in accordance with the following standards:
(1) Manufacturing and Construction: companies whose actual capital does not exceed 40m NT dollars and whose total assets do not exceed 120m NT dollars.
(2) Mining and Gravel Pits: companies whose actual capital does not exceed 40m NT dollars.
(3) Transportation, Warehouse & Storage, Telecommunication and other services: companies whose business revenues from the previous year did not exceed 40m NT dollars.
(4) Any other businesses: companies whose revenues from the previous year did not exceed 40m NT dollars.
Any affairs administered by other government agencies in accordance with article 3, paragraph 3, of the regulation, and operating under a different standard, need to be submitted for approval to the Executive Yuan by the Ministry of Economic Affairs. Those affairs which are not covered by this regulation are not subject to this rule (Article 2 of the Recognition Standard of Medium & Small Business). Publicly announced in accordance with an official order #MOEC(80) B059364 dated November 25, 1992 by The Ministry of Economic Affairs.
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[52] Yang, T. L., "A Study of the Enterprise's Motivation for Merger and Acquisition, and Running Performance--Taiwan's Top 1000 Manufacturers, " Master Dissertation, Graduate Institute of Management Science Providence University, 1996, p. 107.
[53] "Losses incurred in the operation of business in the previous year shall not be included in the computation for the current year provided, however, in the case of a profit-seeking enterprise organised as a company that keeps a complete set of account books, using the Blue Returns as provided in Article 77 in the years such losses occurred and in the year of declaring such losses, or such losses have been duly certified by a certified public accountant and declared within the prescribed period, taxation may be made on its net income after deduction of losses incurred in the preceding five years as verified and determined by the local collection authority-in-charge". (Article 39 of Income Tax Law)
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CHAPTER 2

RESEARCH DESIGN AND SAMPLE

2.1 INTRODUCTION

The ordering of the research design processes was as follows. First, the specific aim was decided: the study of Taiwanese enterprises' mergers and acquisitions. The relevant theory and literature were then reviewed. From this, a set of hypotheses were formulated and the information needed to test the hypotheses decided upon. Two methods of capturing this information were chosen: questionnaires and financial statements. This chapter discusses only the questionnaires; the details of the financial statements are discussed in chapter 9. The questions to be contained in the questionnaires were constructed and the method of administration, by post decided on. The research time period was decided and the lists of companies which have been involved in the merger and acquisition activities compiled. A pilot survey was then conducted to make sure that the questionnaire worked and yielded the data required. The field work was then carried out.

The statement of hypotheses is considered in a later chapter when different aspects of merger and acquisition activity are separately considered. This chapter describes in Section 2, the research samples relating to the lists of companies which have been involved in merger and acquisition activities between 1990 and 1995. In Section 3, the reasons for using postal questionnaires as a primary research instrument are explored. Section 4 describes the questionnaire and experimental design. Section 5 reviews the pilot work and Section 6 the questionnaire survey. Finally Section 7 draws a brief conclusion.

2.2 RESEARCH SAMPLE

The sample for the study consists of two parts, mergers (including consolidations) and take-overs. The mergers data originates mainly from the Department of Commerce and the Bureau of Industrial Affairs of the Ministry of Economic Affairs (MEA), and from the Securities and Exchange Commission of the Ministry of Finance of The Republic of China (ROC). The take-over cases originated primarily from the Data Base Centre of the Taiwan Economic Journal (TEJ) Co., Ltd. The identity of a few take-over cases within the sample emerged from telephone interviews, business enterprises' prospectuses/annual reports, and completed questionnaires. Owing to the practical difficulties of collecting non-public offering companies' financial statements, the Data Base Centre of TEJ only collects the consolidated financial statements of listing companies and some public offerings. According to government regulations, if a company holds over 50% of the shares in another company and the subsidiary company's total assets and net sales amount to over 10% of those of the parent company, the parent company must present a consolidated financial statement to indicate its financial situation and its operational outcome. Between 1989 and 1995, 243 listing companies and 147 public offering companies presented a consolidated financial statement to the Inland Revenue Service. A check of the parent and subsidiary companies from these consolidated financial statements indicated that the parent company typically sets up and holds 51% to 99% of shares in the new subsidiary company. Foreign business merger or take-over events are excluded. The data sources are shown in Table 2-2-1. The total sample includes 331 merger and take-over cases.

Almost all firms involved in a merger or an acquisition during the period 1990-95 have been identified and included.[1] The period 1990-1995 is studied for four reasons. Firstly, it is very difficult to collect merger cases from any source apart from government records and government records only identify 3 merger cases which were transacted prior to 1990. The private data banks only collect limited data and except for large and important cases, newspapers do not report merger events. Secondly, it is difficult to discover the motives for mergers which occurred before the data collection period because the respondent may not remember or

know the reasons. Thirdly, it takes time for the influence of a merger to become apparent. If the acquiring firm has one to five years to observe the merger's effect, the results may be more fully assessed. Fourthly, Taiwan's economic development and industrial structure have significantly changed during the 1980s. For example, gross national product increased from US $ 41,369 million in 1980 to US $ 164,076 million in 1990 and to US $ 275,144 million in 1995.[2] Agriculture was an important industry in the 1950s and 1960s in Taiwan. But Services have become the largest industry and produce 54.6% of GDP in 1990 and 60.2% in 1995. The share of GDP produced by Agriculture and Industry was 4.2% and 41.2% respectively in 1990, and 3.6% and 36.2% respectively in 1995.[3] The changed economic development and industrial structure may have various effects. Since the total population of merger and take-over cases is so small, it was necessary to collect as many cases as possible to conduct a statistical analysis.

2.3 DATA COLLECTION

The sample contained 17 listing and 17 public offering merger cases (acquiring company). The other cases were non-public offering companies and are not required to publish their financial statements. In Taiwan, a financial statement typically contains confidential information about that company and, hence, is difficult for a researcher to collect. However, balance sheets may be obtained from some private companies. The difficulty of obtaining financial statements means that some merger information may not be clearly indicated by the financial data. As a result it was decided to use a Postal questionnaire as the primary research instrument with the collection of financial data to gain further information.

2.4 THE QUESTIONNAIRE AND EXPERIMENTAL DESIGN

The questions within the questionnaire were suggested, in part, by reference to earlier and similar research, by consulting with experts (including chartered accountants, lawyers, management consultants, and government officials), and

experienced academic researchers, and by my own knowledge of Taiwan's economic environment. Rating scales are used in some questions (questions 7, 10, 12, 13, 14, and 15) to collect as much information as possible on respondents attitudes at the highest order level of measurement possible. Each scale ranges from "very important" to "fairly important", "important", "slightly important", and "not at all important" or from "very superior" to "superior", "fair", inferior", and "very inferior" or from "very serious" to "fairly serious", "serious", "slightly serious", and "not at all serious" in five divisions. These five divisions are ascribed values of 1, 2, 3, 4, and 5 respectively.

2.5 PILOT WORK

The pilot survey was conducted to make sure that the questionnaire worked and yielded the data required. A random number table was used to select 10 merger companies as the first pilot survey sample. After ten days, the 10 firms were telephoned but only four of the questionnaires had been received by the right department and person. Two companies stated that they receive many questionnaires every week and only choose the few which are necessary and have simple and relevant questionnaires to answer. This questionnaire was too long to be worth their while. One firm said that it did not normally answer questionnaires. Only one company completed the questionnaire as requested. The other six firms said that if the address and addressee are not correct, the questionnaire may simply be destroyed. In those cases, the correct department and person responsible for the merger event was established and they were asked to complete the questionnaire. As the original 25-question version of the question had proved too long, 8 questions were deleted and the revised questionnaire was sent out to the first pilot survey companies again. The questionnaire can be found in Appendix 1. The random number table was used again to select a further 10 companies and the survey procedure adjusted. Firstly, the second pilot survey companies were phoned to find the pertinent department and person. Secondly, the purpose was explained to the relevant managers or directors. A number of company officials volunteered

the real reason(s) or motive(s) for their merger, together with other issues. Thirdly, the address and addressee were confirmed. In the second pilot survey of the original 10 firms 9 responses were eventually received and 9 out of 9 responses (one firm had folded) were received from the second pilot survey sample.

2.6 MAIN QUESTIONNAIRE SURVEY

The questionnaire survey consisted of a telephone interview to confirm the appropriate respondent and accurate address, sending out of the postal questionnaires, telephone follow-up, and the collection and checking of the returns. The two pilot surveys provided valuable experience on gaining access to respondents and increasing the response rate. All of the 331 merger companies in the sample were contacted. On average, it took 5-10 telephone calls to establish the relevant respondent and speak with them. About 2,000 telephone calls were made in the course of this study. The results were as follows:

(1) 21 firms did not finally merge or take-over.

(2) 14 acquiring firms ceased trading.

(3) 10 firms could not be contacted.

(4) 286 cases were identified and the questionnaires mailed or faxed to them (including the first and second pilot survey companies).

(5) 248 questionnaires were returned but 3 of them were not completed.

(6) Completed questionnaires for 245 merger and take-over cases were received.

(7) The effective response rate was 85.7% (245/286).

2.7 CONCLUSION

The sample for the study consists of two parts, mergers and take-overs. The mergers data originate mainly from three governments Departments. The take-over cases are drawn primarily from the Data Base Centre of the Taiwan Economic Journal Co., Ltd. All firms involved in a significant merger or acquisition during the period 1990-95 were identified.

There were 34 listing or public offering merger cases (acquiring company) in the sample. The others were non-public offering companies. It is difficult to collect the financial statements of non-public offering companies and some merger information may not be acquired from financial data. Postal questionnaires were the primary research instrument with the collection of financial data to gain further information.

The questions within the questionnaire were suggested by reference to earlier and similar research, by consulting with experts and experienced academic researchers, and by knowledge of Taiwan's economic environment.

Two pilot surveys were conducted to make sure that the questionnaire worked and yielded the data required. Many telephone calls were made to confirm the appropriate respondent and accurate address and to increase the response rate. The sample finally included 245 merger and take-over cases. The effective response rate was 85.7% (245/286).

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[1] (1) Article 398 of Company Law states that "A company merged or consolidated with another company shall apply for any of the following registrations within fifteen days after the merger or consolidation has been effected: 1. Amendment registration in case the company continues its corporate existence after merger or consolidation; 2. Dissolution registration in case the company is dissolved after merger or consolidation; or 3. Incorporation registration in case the company is a new company after merger or consolidation". An application for any of the above registrations (at the Department of Commerce of Ministry of Economic Affairs) shall be accompanied by a balance sheet prepared by the company as the situation requires. (2) If a company wants to enjoy tax benefits to go into merger or consolidation for the purpose of promoting reasonable operations and management, it needs to register and gets specifically approved by the Bureau of Industrial Affairs of the Ministry of Economic Affairs (Article 13 of Statute for Upgrading Industries). (3) When a company wants to issue new shares as a result of a merger or consolidation with another company, it requires to register and get the approval by the Securities and Exchange Commission of the Ministry of Finance (Article 267 of Company Law and Article 22 of Securities and Exchange Law).

[2] Monthly Statistics of The Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, The Republic of China, No. 377, June 1997, p. 27. Taiwan Statistical Data Book 1994, Council for Economic Planning and Development, Republic of China, June 1994, p. 1.

[3] Monthly Statistics of The Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, The Republic of China, No. 377, June 1997, p. 29. Taiwan Statistical Data Book 1994, Council for Economic Planning and Development, Republic of China, June 1994, p. 2.

CHAPTER 3

CHARACTERISTICS OF TAIWANESE ACQUIRING AND ACQUIRED ENTERPRISES

3.1 INTRODUCTION

In this chapter we begin the analysis of the completed questionnaires derived from a fairly complete postal survey of Taiwanese mergers and take-overs and describe the general characteristics of the respondent firms. The industrial classification of enterprises involved in mergers and acquisitions in Taiwan is discussed in the next section. Transaction years and cases are presented in the third section. The fourth section describes the prior relationship of acquiring and acquired firms. The fifth section discusses four forms of merger and acquisition. The type of transaction between bidders and their targets is then presented in the sixth section. The issue of friendly and hostile mergers and acquisitions is the subject of the seventh section. The eighth section analyses the total assets of the acquiring and acquired enterprises before and after each transaction. The final section outlines some conclusions.

3.2 THE INDUSTRIAL CLASSIFICATION OF MERGING FIRMS

The standard industrial classification of the identified firms is shown in Table 3-2-1. There were 286 identified cases of merger and acquisition from 1990 to 1995. The Electrical and Electronic Machinery, Manufacturing and Repair industry had the greatest number of acquiring firms with 53 cases which is 18.6% of the sample. Second was the Securities and Futures industry with 30 cases, 10.5% of the sample. The third was Food Products Manufacturing with 18 cases and the fourth was Foreign Trade with 14 cases. The other acquiring industries with over 10 cases were Textiles, Chemical Products Manufacturing, Plastic Products Manufacturing, Basic

Metal Manufacturing, Machinery and Equipment Manufacturing and Repair and Building Construction.

Details of the standard industrial classification of the respondent sample are also shown in Table 3-2-1. There were 245 effective cases which occurred from 1990 to 1995. It can be seen that the industry with the largest number of acquiring firms was still Electrical and Electronic Machinery, Manufacturing and Repair. It had 41 cases, which is 17.6% of the sample. The next is the Securities and Futures industry which had 26 cases, 10.6% of the sample. Food Products Manufacturing was third with 16 cases. The other industries with over 10 cases were Textiles, Chemical Products Manufacturing, Basic Metal Manufacturing, Machinery and Equipment Manufacturing and Repair and International Trade.

To see whether the sample was representative of firms known to be involved in mergers and acquisitions, a number of tests were performed. Some tests (Siegel, 1956[1]; Dixon and Massey, 1969[2]) recommend that all expected cell counts should be five or more before performing the Chi-Square goodness-of-fit test. Cochran (1954)[3] indicates that the approximation should be very good if no expected number is less than one and no more than 20% of the expected numbers are less than five. We combine categories if some of the expected numbers are too small and if the combination of categories does not change the nature of the hypothesis to be tested. As seen in Table 3-2-2, we divide the identified and respondent samples into seven industries. The industrial distribution of the acquiring enterprises in both groups was then compared. A goodness-of-fit test was used. The null hypothesis (H_0) and alternative hypotheses (H_1) are as follows:

$H_0 : Y_i = Y_{i0}$ for categories i =Agriculture, Manufacturing, ..., Business Services and Others, Y_{i0} are specified probabilities.

$Y_{i0} = N_i / \sum N_i$, where N_i is the identified number in category i.

and

H_1 : At least one of the cell probabilities differ from the hypothesised value.

$\chi^2 = \Sigma [(n_i - E_i)^2 / E_i]$, where n_i is the responding number in category i and

$E_i = nY_{i0}$ is the identified number under H_0

The computed value of $\chi^2 = 1.0433$ is smaller than the critical value of 12.5916, so the null hypothesis cannot be rejected and it can be concluded that there is no significant difference in the industrial distribution of the acquiring firms between the identified sample and the respondent sample.

Using the same statistical test, the industrial distribution of acquired enterprises was tested in Table 3-2-3. The computed value of $\chi^2 = 1.3828$ is smaller than 12.5916, so the null hypothesis cannot be rejected and it can be concluded that there is no significant difference between the industrial distribution of the identified acquired firms and those contained in the respondent sample.

The result of the Chi-Square goodness-of-fit tests indicates that the observed relative frequencies of responses from this survey are the same as those that would be expected on the basis of government registered data. The sample is a very good representation of the firms known to be involved in mergers and acquisitions in Taiwan in the period 1990-1995.

As shown in Table 3-2-4, the total number of business units (in Taiwan at the end of 1995) was 994,305. There were 11,617 business units in the Electrical and Electronic Machinery, Manufacturing and Repair sector, 1.17% of the total number of business units. Comparing the 17.6% merging rate in Electrical and Electronic Machinery, Manufacturing and Repair (see Table 3-2-1), this industry shows a very high merger rate.

Why was the incidence of merger and acquisition activity in the Electrical and Electronic Machinery, Manufacturing and Repair industry so high between 1990 and 1995? It is possible to explain the high incidence in terms of international competition in these industries. The total amount of business sales in all industries in 1995 in Taiwan in aggregate was NT$ 19,021,003 million[4]. Electrical and Electronic Machinery, Manufacturing and Repair achieved NT$ 1,457,576 million in sales[5] which was 7.7% of total business sales. If we compare total business sales, 7.7%, with total business units, 1.17%, we find that the former is about six times greater than the latter. Electrical and Electronic Machinery, Manufacturing and Repair, especially in the information, semi-conductor, and communications products sectors, has faced very strong competition from global markets in the 1990s. It is also the most successful industry in Taiwan.[6] The total value of business sales in the information industry was NT$ 360 thousand million in 1995. Taiwanese information industry's sales ranked third in the world in 1995. The semi-conductor industry's sales were NT$ 148 billions in 1995. Its output of integrated circuits was the fourth largest in the world.[7] The technologies involved in the information and semi-conductor industries have advanced very quickly in recent years. These sectors now need to develop new technologies, improve production processes, enhance their financial structures, increase market power, and improve their managerial efficiency in order to meet the demands of international market competition.[8] The requirements of rapid technological development and strenuous market competitiveness may have caused this industry to display the greatest number of merger and acquisition cases in Taiwan from 1990 to 1995.

Prior to 1988, the Taiwanese government forbade the setting up of new securities firms. Table 3-2-5 shows that there were only 28 securities broker firms (headquarters) in 1987. This number increased to 373 in 1990. The prosperity of the domestic economy and the expectation of an appreciation of the New Taiwan Dollar led to a substantial amount of money being invested in the stock market in 1988. The large trading value and high turnover rate in stocks and shares made huge profits for

securities firms. The bull market environment lasted for two years. Table 3-2-6 shows that the index of stock prices was 1,039.11 in 1986 and reached the highest level of 8,616.14 in 1989. The trading value in stocks was NT$ 675,656 million in 1986, rose to NT$ 25,407,963 million in 1989, and fell to NT$ 5,917,078 million in 1992. This huge reduction in trading value meant that the peak number of securities broker firms could not be sustained. Mergers and acquisitions of securities firms began to occur from 1990; a total of 29 securities firms were acquired between 1990 and 1995.

With increasing labour costs, the labour intensive textile industry lost its cheap labour cost advantage. Meanwhile, the public had also grown concerned about environmental pollution and the textiles and Chemical Products Manufacturing industries were compelled to invest heavily in expensive anti-pollution equipment. The textiles and Chemical Products Manufacturing industries' operating costs thus increased and profits fell. In addition, when companies closed or moved off-shore to ensure cheaper labour costs, a number of firms merged with, or were acquired by, other enterprises. There were 13 acquired enterprises in these industries.

3.3 TRANSACTION YEAR

As shown in Table 3-3-1, there were 285 identified mergers and acquisitions in Taiwan between 1990 and 1995. More (80 cases) occurred in 1995 than in any other year. The lowest number of cases in a year was 12 in 1990. Data relating to 237 mergers and acquisitions for all years were returned to me. The largest and smallest number were 65 and 12 in 1995 and 1990 respectively. We can see the upward trend in the number of mergers and acquisitions in Taiwan since 1990.

A further test was carried out to see if the survey sample (respondent merging and acquiring firms) was similar to the population (identified merging and acquiring firms). This time it concerned the distribution of transactions in each year. Again we

used the Chi-Square goodness-of-fit test. The null hypothesis (H_0) and alternative hypotheses (H_1) were as follows:

H_0 : $Y_i = Y_{i0}$ for categories i = 1990, ... , 1995, Y_{i0} are specified probabilities.

$Y_{i0} = N_i / \sum N_i$, where N_i is the identified number in category i.

and

H_1 : At least one of the cell probabilities differs from the hypothesised value.

$\chi^2 = \sum [(n_i - E_i)^2 / E_i]$, where n_i is the observed number in category i and

$E_i = nY_{i0}$ is the identified number under H_0

The computed value of $\chi^2 = 1.9964$ is smaller than the critical value of 11.0705, so the null hypothesis cannot be rejected and it can be concluded that there are no significant differences in the distribution of numbers of transaction over the years 1990-1995 between the population and the observed sample.

3.4 BUSINESS GROUP

Table 3-4-1 shows that there were 210 cases where both the acquiring and the acquired firm belonged to the same business group, i.e. 85.7% of the sample. There were only 35 cases, 14.3% of the sample, where this did not hold. These results indicate that most merger and acquisition events in Taiwan were transacted from within the same business group in this period.

This result is similar to that found by Fang (1990)[9] and Lin (1990)[10]. Fang outlined three reasons for the high proportion of mergers and acquisitions occurring within the same business group in Taiwan. (1) It is easier to agree the terms and conditions of a

transaction when the acquiring and acquired firms are in the same business group than when they are not. (2) The organisational culture of firms is similar between members of the same business group and there is likely to be less resistance from employees towards a transaction when it occurs within that bloc. (3) The management or main shareholders can still retain control of the firm. Li (1991)[11] reasoned as follows: (1) Existing productive enterprises, if they conform to the production scales and criteria prescribed by the Government following a merger or consideration, are entitled to a fifteen per cent (15%) reduction in the profit-seeking enterprise income tax for two years after the transaction is enacted (Article 40 of the Statute for Encouragement of Investment). (2) In a cumulative income tax rate system, companies are likely to sub-divide themselves into many smaller enterprises to decrease their firms' total liability for income tax. That is, setting up many small companies reduces the cumulative income tax rate to the lowest possible income tax rate. The highest operational net income tax rate was 30% in 1951 and rose to 50% in 1953. By 1995, profit-seeking enterprises whose operational net income exceeds NT$ 100,000 (the foreign exchange rate of New Taiwan Dollar to Pound Sterling is about 42 : 1 in 1995) were liable to pay 25% income tax.[12] When the amount of taxable income is so low that the incentive for saving income tax is no longer so important, companies may change their tactics. For example, when they find that processing many small business units increases their administrative and communication costs while the savings on enterprise income tax is limited or is no longer relevant, they merge. (3) The rise in the stock market beginning in 1988 (its bull market period) encouraged many companies to merge so as to meet the criteria of the minimum corporation capital NT$ 200 millions' regulation and to apply to be listed on the security market.

According to information I gleaned from telephone interviews with acquiring firms' Finance or Accounting Directors (or with Chief Executive Officers), the major reasons for a high proportion of transactions occurring between members of the same business group were as follows. (1) Ease of negotiation: where the acquiring and acquired firms belong to the same business group, the agreement to transact is easier

to negotiate than if the companies belong to different groups. (2) Managerial arrangements: in Taiwanese business, "the management" is the Chief Executive Officer or the major shareholder. In the same business group, the acquiring and acquired firm's manager may be the same person or be a member of his/her family. Hence, there will be less managerial resistance and it is easier to decide on the allocation of managerial duties than if this family relationship did not exist. (3) Organisational culture and structure: in the same business group, these are similar. The staff are more compatible than would be the case with utterly different companies. The acquired firm's employees probably find it easier to accept the transaction than if they were not part of the same group. (4) More and better information: management can access more and better information to assess and analyse a firm's operations if it is in the same business group. If they find that the transaction is likely to be beneficial for both the acquiring and acquired companies, the deal is likely to be concluded.

3.5 FORMS OF MERGER AND ACQUISITION

As seen in Table 3-5-1, the most common form of transaction was the 'Merger'. There were 217 cases of this form, that is 88.6% of the sample. The least common form in the sample was 'Consolidation' of which there were just four cases, i.e. 1.6% of the sample. The 'Acquisition of Stock' and 'Acquisition of Assets' had 14 and 10 cases, that is 5.7% and 4.1% of the sample respectively.

The government encourages the merging and consolidation of small companies for the purpose of promoting efficient operations and management.[13] If an acquiring company merges with another enterprise, the acquired firm does not need to liquidate its assets and close up shop. If the acquiring company chooses 'consolidation' as its means of transacting with another company, the acquiring and acquired firms need to liquidate their assets, repay their debts, and close prior to setting up a new company. The consolidation procedures are more complicated than is the case for mergers and administrative costs are higher. This is why few companies opt for a 'consolidation'.

If a company is specifically approved by the Ministry of Economic Affairs to go into a merger or consolidation for the purpose of promoting reasonable operations and management, it can qualify for tax benefits (Article 13 of the Statute for Upgrading Industries). The company is also exempt from all income tax, stamp tax and deed tax (Paragraph 1 of Article 13 of the Statute for Upgrading Industries). The land-value increment tax payable may be charged to the account of, and paid by, the enterprise surviving after the merger or consolidation at such time as the land is further transferred (Paragraph 2 of Article 13 of the Statute for Upgrading Industries). Article 40 of the Statute for Encouragement of Investment states that "Existing productive enterprises, if conforming to the production scale and criteria prescribed by the Government after a merger or consolidation, shall be entitled to a fifteen percent (15%) reduction in the profit-seeking enterprise income tax for two years after a merger or consolidation". Firms transacting by 'Acquisition of Stock' and 'Acquisition of Assets' cannot receive the tax benefits mentioned above.

If the acquiring company selects a 'merger' as its form of transacting with another company, it can lessen the administrative load, reduce transaction costs, and enjoy tax benefits. In the light of such governmental tax regulations, we can understand why the 'merger' accounted for 88.6% of all transacted cases in Taiwan.

3.6 TYPE OF TRANSACTION

As seen in Table 3-6-1, horizontal transactions accounted for the greatest proportion of cases, (142), 58.0% of the sample. The smallest proportion of cases was of the congeneric type with just 24 cases, i.e. 9.8% of the sample. There were 43 and 36 cases of conglomerate and vertical transactions respectively, this is 17.6% and 14.7% of the sample.

This high incidence of horizontal transaction is consistent with other studies: Sung (1989)[14], Fang (1990)[15], Lin, K. C., (1990)[16], Li (1991)[17], Lin, Tsung-tse (1990)[18],

and Yang (1996)[19]. Fang concluded that there are two reasons for this phenomenon. Firstly, technology and market distribution are easier to exploit in horizontal transactions than in other transactions. Secondly, government approval (i.e. conforming to the criteria of Article 38 of the Statute for Encouragement of Investment) may be more easily gained for horizontal transactions than for other transactions.

The earliest merger record we can find is that of the Eastern Asia Electronic Enterprise which consolidated four small electronic companies--Asia, Kuokuang, Taiwan, Hsinhsing--and founded the China Electronic Limited Company in 1955.[20] The first listed firm merger case was Taiwan Plastic Industry Limited which merged with Kungsan Electronic Stone Limited in 1965.[21] Thus there is a 40-year history of mergers and acquisitions in Taiwan. This resembles merger and acquisition activity in the US, whose first merger wave, 1895-1904, consisted mainly of horizontal transactions.[22]

As shown in Table 3-2-6, there were only 199 listed companies with capital of over NT$ 200 million in Taiwan in 1990, but this rose to 347 listed companies in 1995. The capital and sales of a company are very small in the early stages of its development. A small or medium-sized business does not typically have enough surplus funds to merge with or acquire another business. This is probably the reason why there have been so few mergers or acquisitions in Taiwan. Where firms do have surplus funds to acquire another firm, they generally try to do a deal with a firm from the same industry. Management are more familiar with the production, market distribution, and technological issues of their own industry than they are of other industries. Hence, horizontal transactions reduce their risk. Another reason may be that an acquiring firm may gain the economies of a larger production scale and decreasing administration costs if they opt for a horizontal transaction. It is probably easier to increase market share or market power and so enhance market competitiveness through a horizontal transaction. The government's declared purpose is to encourage small firms producing the same product to merge or

consolidate in order to promote efficient operations and management (Article 38 of the Statute for Encouragement of Investment). That is why it is easier for horizontal transactions to gain government approval and its commensurate tax benefits. More light will be shed on the significance of different motives for different types of merger and acquisition activity when we present evidence from the questionnaire study in the next chapter.

3.7 FRIENDLY TRANSACTIONS

As seen in Table 3-7-1, almost all the acquiring and acquired firms in our survey were engaged in a friendly rather than a hostile transaction. There were 244 cases, i.e. 99.6% of the sample. There was only one hostile transaction.

A friendly merger or acquisition is a bid agreed by the acquired firm's management and shareholders, whereas a hostile merger or acquisition is agreed only by the acquired firm's shareholders.[23] Firstly, in Taiwan, industrial development has not reached a stage where the separation of ownership and management is common. The management is usually the owning group or the main shareholders.[24] If the owner or main shareholders accept the transaction, it can be assumed that the management also agree. Secondly, capital markets[25] (including the stock and bond markets) and money markets[26] are in the earliest stages of development in Taiwan. They cannot offer a necessary variety of financial instruments for a high degree of operating leverage.[27] Leveraged buy-outs[28] and management buy-outs[29] are not popular, and junk bonds have never been issued because the Taiwan (ROC) government forbids this practice. Thirdly, Section 3.4 mentioned that in 85.7% of the sample, acquiring and acquired firms belong to the same business group. Where this is the case, a friendly transaction can be reasonably expected. Fourth, only 17 transacted companies in our sample are listed companies. The bidding company does not have a market in which to 'tender offer'[30] the target firm's shareholders. Finally, a hostile transaction is anathema to Chinese culture. Even in business, Chinese culture nudges its participants towards co-ordination, co-operation and friendly negotiation, rather

than hostile competition. That is why all but one case in the sample have been friendly transactions.

3.8 TOTAL ASSETS BEFORE OR AFTER EACH TRANSACTION

3.8.1 SKEWNESS AND KURTOSIS

Table 3-8-1 shows the coefficients of skewness[31] of the size distributions of acquiring and acquired firms, where size is measured by total assets. The coefficient of the distribution of acquiring firms before the transaction was 14.095, after the transaction, 14.146, and for acquired firms, 11.590. A positive value indicates that the distribution is skewed to the right and the mean value is affected by the extreme values (i.e. of extremely large assets). The coefficients of skewness of the distributions of acquiring firms' total assets pre- and post-transaction are almost equal, and both of them are larger than the distribution for acquired firms. This result implies that the acquired firms' total assets display a smaller proportion towards the left side of the distribution than does the proportion for acquiring firms.

The coefficients of kurtosis[32] for the distribution of the acquiring firms' total assets pre- and post-transaction are 203.737 and 206.521 respectively. For the distribution of acquired firms, it is 147.326. The huge values indicate that the distribution is very peaked. A leptokuric distribution tends to have more cases in the extreme tails than does a normal distribution. Just like the coefficients of skewness, the coefficients of kurtosis of the distribution of the acquiring firms' total assets before and after transaction are similar, and both of them are larger than the distribution for the acquired firms. This result shows that the distribution of the acquired firms' assets is flatter than that of the acquiring firms' assets. The distribution of the acquiring firms' total assets before and after transaction and that of the acquired are shown separately in Figures 3-8-1, 3-8-2, and 3-8-3.

3.8.2 MEAN SIZES

Table 3-8-1 also shows that the minimum and maximum value of the pre-transaction assets of acquiring enterprises were NT$ 5,000,000 and NT$ 345,362,400,000 respectively. The mean and variance of assets were NT$ 2,916,260,000 and NT$ 5,627,000,000,000. The minimum and maximum value of the post-transaction assets of acquiring enterprises were NT$ 5,000,000 and NT$ 368,716,970,000 respectively. The mean and variance of assets were NT$ 3,449,670,000 and NT$ 6,271,000,000,000.

Table 3-8-1 indicates that the minimum and maximum value of assets of the pre-transaction the acquired enterprises were NT$ 500,000 and NT$ 41,187,020,000 respectively. The mean and variance of assets were NT$ 606,160,000 and NT$ 94,410,000,000. When the size of each acquiring firm was compared with its acquisition partner, the size of the assets of the acquiring firms was larger than that of the acquired firms. This result is similar to the findings of Singh (1975)[33], Cosh et al. (1980)[34], and Cosh et al. (1989)[35]. They all conclude that acquiring firms are, on average, bigger than those they acquire. The large firm has greater financial resources (in terms of its own funds or its term borrowing from banks) to merge with or take-over another small firm, and the smaller target firm may decrease the acquiring firm's transaction costs.

3.8.3 DIFFERENCES BY BUSINESS GROUP

Table 3-8-2 shows that the acquiring firms that did not belong to the same business group before and after the transaction had larger mean assets than those which did. By contrast, where the acquired firm had a prior relationship with the acquiring firm, it had larger average assets than those which did not. All of the standard deviations of the transaction's enterprises were larger than their mean. The result indicates that the asset distribution of the firms was very scattered. No matter whether they belonged to the same business group or not, the mean size of the acquiring firms' assets before the transaction was also greater than that of the corresponding acquired firm.

The result indicates that where the acquiring firm did not have a prior relationship with the target firm, the former required considerable assets (cash or stocks) to acquire the latter. In contrast, where the acquiring and acquired firms belong to the same business group, the main shareholders of both companies are the same so it is easier to agree to the transaction and the acquiring firm does not need to have large assets to pursue the merger. As for the assets of the acquired firm, the bidding firm is only bound by its own available transaction funds so it can go ahead and acquire a small target even where no prior relationship exists. This means that the average assets of acquired firms which did not have a prior relationship with their acquiring firms were smaller than those that had this association.

3.8.4 DIFFERENCES BY FORM OF TRANSACTION

The size of acquiring and acquired firms differed between the different forms of transaction. The results are presented in Table 3-8-3. The largest average assets pre- and post-transaction were for deals involving the 'acquisition of stock'. These were NT$ 4,219,380,000 and NT$ 4,967,800,000 respectively. Considering the sizes of acquired firms in relation to the form of transaction, the acquired firms with the largest average assets (NT$ 633,860,000) were those transacted as a 'merger'. The minimum average assets occurred in 'consolidation' for both acquiring and acquired firms. These values were NT$ 30,000,000, NT$ 75,000,000, and NT$ 25,000,000 respectively. For most forms of transaction, the standard deviation of the distributions of assets for acquiring and acquired firms was larger than its mean. This result indicates that the asset distribution of the firms was very dispersed.

The findings suggest that an 'acquisition of stock' normally requires the bidding company to have considerable funds if it is to purchase the target's total or substantial-part shares (over 50% of total shares) so it is reasonable to expect that the acquiring firm will have the largest average assets. If the acquiring company chooses 'consolidation' to transact with another company, the bidding and target companies

separately need to liquidate their assets, repay their debts and close their companies before setting up a new company. After the liquidation, the total assets of the consolidated firm are apparently reduced. The average size of acquiring firms before the transaction was larger than the average size of the acquired firms for all forms of acquisition.

3.8.5 TYPE OF TRANSACTION

Table 3-8-4 separately indicates the mean assets pre- and post-transaction by type of transaction. For acquiring firms the largest average assets were NT$ 20,232,880,000 and NT$ 21,307,610,000 before and after transaction respectively. For acquired enterprises, the largest size was NT$ 2,611,720,000. In all cases the largest size was found for enterprises involved in a congeneric transaction. The smallest average assets were NT$ 780,490,000, NT$ 1,076,620,000, and NT$ 277,420,000 respectively, and all were found for vertical transactions.

It was also found that the standard deviation of the distributions of firms' sizes for companies involved in congeneric transactions was very large. The standard deviation of the distributions was NT$ 81,163,350,000, NT$ 84,176,220,000 and NT$ 9,380,610,000 for acquiring firms before transaction, acquiring firms after transaction and for acquired firms, respectively. The standard deviation of enterprises involved in congeneric transactions was approximately four times its mean. These results indicate that the distributions of firms' assets were widely scattered.

Article 13 of Fair Trade Law states that "to ensure fair competition and to promote the stability and prosperity of the economy, where an enterprise enters into a combination without filing an application for approval as required or after the disapproval of its application, the Fair Trade Commission may prohibit such combination". If the surviving enterprise captures one-third of market share, or if an enterprise participating in the combination holds a quarter of the market, it needs to file with the Fair Trade Commission for approval (Article 11 of Fair Trade Law).

Horizontal transactions are subject to the Fair Trade Law so their scale cannot, in general, be very large. In contrast, congeneric combination firms are in the same general industry but do not produce the same type of goods or service. So the Fair Trade Commission does not forbid a 'congeneric' transaction. The results indicate that the mean assets of enterprises involved in 'congeneric' transactions are larger than the mean assets of enterprises involved in 'horizontal', 'vertical', or 'conglomerate' transactions in Taiwan. Considering that Taiwan is in the early stage of its economic development, the scale of business is not very large so enterprises do not usually have enough surplus funds to invest in acquiring upward or downward suppliers. Even when this type of transaction is accomplished, the acquisition scale remains very small. As a result, the average size of vertical transactions is small for acquiring and acquired firms. The pre-transaction mean assets size of acquiring firms is larger than that of acquired firms in all types of transaction. This indicates that the assets of acquiring firms are normally greater than those of their targets.

3.9 CONCLUSION

The industry with the largest number of acquiring firms was Electrical and Electronic Machinery, Manufacturing and Repair. The requirements of high technological development and keen market competitiveness may account for why it has the most merger and acquisition activity in Taiwan from 1990 to 1995. The largest and smallest number of merger and acquisition cases occurred in 1995 and in 1990 respectively. There has been an upward trend in the number of mergers and acquisitions in Taiwan since 1990. Most of the merger and acquisition events happening in Taiwan are within the same business group. The major reasons for a high proportion of transactions occurring between members of the same business group are ease of negotiation, less management resistance, similar organisational culture and structure, and management have access to more and better information to assess and analyse the transaction. The most common form of transaction was the 'merger'. The least common form was 'consolidation'. Government encouragement (tax benefits) and simple and cheap administrative procedures were the primary

incentives for acquiring companies choosing the merger as the form of transaction. Where the acquiring company chooses 'consolidation' as the form of taking-over another company, both the acquiring and acquired companies need to liquidate their assets, repay their debts and close their companies before setting up a new company. The consolidation procedures are complicated and administrative costs are very high. This is why few companies adopt a 'consolidation' approach.

The most common transaction type for acquiring and acquired firms was horizontal. We hypothesise that this is due to management's familiarity with the production, market distribution and technology of the partner firm making it easier to gain the economies of a larger production scale, to increase market share or market power, and to avail of the special tax benefits that are aimed at encouraging small enterprises to merge. Most transactions were considered friendly because the management is usually the owning group or the main shareholders and the Chinese culture supports 'friendly negotiation' over 'hostile competition'. The leveraged buy-out or management buy-out is not popular in Taiwan as capital markets and money markets are in an early stage of development so they cannot offer the variety of financial instruments that allow a high degree of operating leverage. Acquiring firms that did not belong to the same business group before or after the transaction had larger mean assets than those which did belong to the same group. Where the acquired firm had a prior relationship with its acquirer, it had larger average assets than those which did not.

The largest average assets before and after transaction occurred when the 'acquisition of stock' by the acquiring firm demanded substantial funds if the target's shares (over 50% of the total shares) were to be purchased. The average size of acquiring and acquired firms was lowest when the transaction was a 'consolidation'. When the acquiring company chooses 'consolidation' as the form of taking-over another company, the bidding and target companies separately need to liquidate their assets, repay their debts and close their companies, before setting up a new company. After the liquidation, the total assets of the consolidated firm are apparently reduced. The

largest and smallest average value of assets occurred in congeneric and vertical transactions. Horizontal transactions are subject to the Fair Trade Law so their scale cannot be very large. The firms in a congeneric combination are in the same general industry but they do not produce the same type of goods or service so the Fair Trade Commission does not forbid their combination. The mean asset size of acquiring firms before transaction is larger than that for acquired firms in all directions of transaction. This indicates that the assets of the acquiring firm are normally greater than those of its target.

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1. If the total taxable income of a profit seeking enterprise is less than NT$ 50,000, the company is exempt from tax.
2. If the total taxable income of a profit-seeking enterprise is less than NT$ 100,000, the income tax rate is 15%. However, income tax payable in excess of NT$ 50,000 must not exceed one half of the portion of taxable income.
3. If the total taxable income of a profit-seeking enterprise is more than NT$ 100,000, the income tax rate on the portion of taxable income exceeding NT$ 100,000 is 25% (Article 5 of Income Tax Law, Amended on January 27, 1995).
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[25] Capital markets are the markets for long-term debt and corporate stocks.
[26] Money markets are the fora where funds are borrowed for short periods--less than one year and they normally trade through Treasury Bills, Commercial Papers, Bankers' Acceptances, and Negotiable Certificates of Deposits.
[27] Fang, Chia-lin, *Corporate Mergers and Business Groups*, Yueh-tan, Inc., Taipei Taiwan ROC, April 1994, p. 14.
[28] A take-over ploy in which a small company borrows heavily on its assets and the assets of the target company in order to finance a take-over of a large company, often making use of junk bonds.
[29] When a company is in difficulty or when it faces the possibility of a take-over by another company, the managers borrow heavily against the firm's assets to purchase the company themselves.
[30] An offer to buy the stock of a firm directly from its shareholders.
[31] Measure of the symmetry of a distribution; in most instances the comparison is made to a normal distribution. A distribution is positively skewed when it contains relatively few large values and tails off to the right. A negatively skewed distribution has relatively few small values. Skewness values falling outside the range of -1 to +1 indicate a substantially skewed distribution.
[32] Measure of the peakedness or flatness of a distribution when compared with a normal distribution. A positive value indicates a relatively peaked distribution, and a negative value indicates a relatively flat distribution.
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CHAPTER 4

ALTERNATIVE THEORETICAL AND EMPIRICAL LITERATURE RELATING TO THE MOTIVES FOR MERGERS AND ACQUISITIONS

4.1 INTRODUCTION

The motives for mergers and acquisitions (M & A) are a very important issue in the study of M&A. Why does one team of managers try to take-over the resources of another firm? A number of hypotheses have been proposed to explain why mergers and acquisitions happen. These hypotheses can be simplified as of two types: value-maximising and non-value-maximising theories (Seth, 1990).[1] The value-maximising theories consider that the main motive for mergers and acquisitions is the maximisation of the value of the company to shareholders. The non-value-maximising theories postulate that managers of bidding firms engage in mergers and acquisitions to maximise their personal gains at the expense of shareholders.

The primary motivation for most mergers and take-overs is to increase the value of the combined enterprise. Ascribing a single motive to any specific merger is dangerous. The principal hypotheses about the motives or reasons for mergers and acquisitions relate to efficiency (operating synergy, financial synergy, pure diversification, etc.), information and signalling, free cash flow, market power, tax, stock market considerations, and to agency problems. All of these US-based theories apply to Taiwan, although stock market considerations are of particular interest in Taiwan. Alternative motives, consisting of seven hypotheses, are summarised in Table 4-1. However, it is very easy to create even more categories; as economic and financial circumstances develop and change new motivations may emerge. So it is difficult to generalise about the motives for mergers and acquisitions.

In this chapter a number of alternative theories of the motives for mergers and acquisitions are described first, and then the relevant empirical studies relating to the motives for mergers and acquisitions in the US and Taiwan are reviewed separately. Finally we summarise the empirical studies and provide a brief conclusion.

4.2 ALTERNATIVE THEORETICAL RATIONALES FOR MERGERS AND ACQUISITIONS

4.2.1 EFFICIENCY THEORIES

Efficiency theories suggest that mergers and acquisitions, by rearranging assets, carry potential social benefits. They generally predict that performance will be improved, either by the incumbent managers or by a kind of synergial achievement. Some mergers and acquisitions are motivated by the belief that the acquiring company's managers can better handle the target's resources. Synergy refers to the ability of a combined company to be more profitable than would be the companies as individual units. This implies that the combined resources of the two companies increase total value.

4.2.1.1 DIFFERENTIAL EFFICIENCY

If company A merges with company B to form company AB, and if the value of the combined company AB exceeds that of the sum of firm A and firm B, then we consider that synergy has occurred. Such a combination should offer advantages to the shareholders of both company A and company B.

$$V_{ab} > V_a + V_b$$

The most common theory of motives for mergers and acquisitions draws on the idea of differential efficiency. If the manager of company A is more efficient than the manager of company B, and if company A merges with or takes-over company B,

then the efficiency of company B is improved up to the level of company A following the transaction. We consider that efficiency is increased by merger or take-over; not only do a company's profits increase, but social advantages also accrue. The efficiency of the whole economy can be improved by such combinations.

The differential efficiency theory of mergers and acquisitions is that there are companies whose operating efficiency is not optimal. Therefore, for companies operating in the same or similar kind of enterprise activity, the potential bidders are more likely to be those whose operating efficiency is above average. They have both the industrial information and understanding to judge whether a target's operating performance is below average or is not realising its potential, and they also have the managerial know-how to improve the performance of the target firm.

4.2.1.2 INEFFICIENT MANAGEMENT

Inefficient management refers to those situations where managers are not performing well, especially because of their wastefulness or their lack of ability or their disorganisation. Inefficient management covers not only the waste of cash but also flows in how staff are deployed or failures to exploit opportunities to increase sales and earnings or to decrease costs. If the capital market is efficient, incompetent management is only tenable for a limited time, it cannot last over the long term because the market mechanism assures that they will be replaced by more capable management. For example, where production companies expand into distribution activities, the managers may not possess enough knowledge of those new activities to operate the company effectively. When a merger or take-over occurs, it works to replace inefficient managers and so achieves an increase in profit rate.

Of course, merger or take-over is not the only means to improve management. But sometimes it is the most simple and effective method. Typically, it is difficult to expect the stockholders of a large public firm to effectively supervise an incumbent management. Managers are naturally reluctant to lay off or demote staff , but if a firm

with inefficient management can be acquired, then it may be possible to replace the current managers with a more efficient management team, and thereby create wealth.

The differential efficiency theory is more likely to involve the superior ability or efficiency of an acquiring firm's management because they possess knowledge of a specific industrial operation. The theory is also more likely to apply to horizontal or congeneric mergers. The inefficient management theory may explain unrelated combinations.

4.2.1.3 OPERATING SYNERGY

Operational synergy theories emphasise that the motive underpinning mergers and acquisitions is to improve operational performance or to achieve some forms of synergy between the acquiring and acquired firms. These can occur in different types of merger including horizontal, vertical, and conglomerate ones. The results can take the form of economic gains for the acquiring and acquired firms and also produce benefits serving the public interest. They may increase the operational efficiency of social resources.

It becomes feasible to exploit economies of scale, to control distribution channels, to combine complementary resources, or to eliminate duplicate personnel and equipment (including administration and research and development), and implies that combining the resources of the two companies increases their total value. The combined company can leverage each separate firm's comparative advantages to increase overall profit rate and growth.

Economies of scale address the problems of indivisibility and of the division of labour. For instance the average cost (measured in terms of people, equipment or overhead) of producing goods or services decreases as output of the goods or services increases. One or both firms may own a special resource that cannot be used to the full, yet which, because of indivisibility, cannot be reduced in size. Merger may

enable resources to be more fully used, allowing fixed costs to be spread over a larger production output. A typical example is management. A good manager may be under-used in a small company. A combination will enable him to exercise his ability within a larger business. The division of labour means that it is possible to restrict the range of jobs performed by each individual labourer, and to employ specialised staffs within the larger company.

Economies of scale may apply in production, marketing, distribution, or research and development, etc. Expensive investments in plant and equipment need larger output to diminish the per unit cost. The expenses of television or newspaper advertising to promote products may be deployed to maximum effect by a national chain store. Any duplication in sales or administrative staff can be eliminated following an acquisition. If a firm finds a good investment opportunity, it may not have time to set up a new plant. Mergers or acquisitions can provide speedy access to new markets or industries and avoid dependence on inadequate distribution channels. When firms merge, the acquiring firm can share the acquired firm's original distributors and customers and increase its sales to these new customers after the transaction. A larger company is more likely to be able to afford R & D and research efforts can be shared. Combined firms can enjoy mutual brand marks, patents and copyright technology, thus saving time and costs. Operating economies may arise in vertical integration. A large company may expect to gain greater control over the production process, through backward integration and forward integration towards the final consumer. Combined companies may achieve more efficient co-ordination and may avoid unnecessary bargaining processes and administrative expenses (accounting, ordering, data processing, etc.) between companies (Williamson, 1971[2]; Arrow, 1975[3]; Klein, Crawford, and Alchian, 1978[4]).

4.2.1.4 FINANCIAL SYNERGY

The rapid growth of conglomerate mergers in the 1960s and 1970s in the USA casts doubt on the earlier managerial synergy hypothesis. Most conglomerate firms are the

outcome of mergers into quite different lines of business, whereas managerial synergy usually refers to acquisitions between companies operating in similar areas. Financial synergy refers to the impact of a merger or take-over on the costs of capital to the acquiring or acquired firm. If financial synergy exists in a corporate combination, capital costs should be lowered. The combination of two firms can reduce risk if the firms' cash flow streams are not perfectly correlated. Higgins and Schall (1975)[5] consider this effect for debt-coinsurance. If the correlation of the income streams of two firms is less than perfectly positively correlated, the bankruptcy risk associated with the combination of the two firms may be diminished. If one of the firms is forced into bankruptcy, loan providers may suffer a loss. If these two firms suffering financial difficulties merge in advance, the cash flows of the combined firm abate the impact of the decline in the single firm's cash flows. Mutual compensation earnings may be adequate to prevent the merged firm from falling into bankruptcy and causing creditors to suffer losses. If a firm can reduce its risk of default or bankruptcy, it may increase its debt capacity and benefit from lower interest rates from banks or the money market and so decrease its operating costs. Because interest payments are tax deductible, the increased tax savings on the interest payments of that extra debt capacity also benefit shareholders (Higgins and Schall, 1975; Galai and Masulis 1976[6]).

Lewellen (1971)[7] considers that if the total debt is permitted to increase, a conglomerate merger may expand the debt capacity of the combined firm and he concludes that stockholders gain from these types of combination. Higgins and Schall (1975) show that shareholders do not benefit from a conglomerate merger. The coinsurance effect of debt just benefits creditors at the expense of shareholders. Rubinstein (1973)[8] and Galai and Masulis (1976) point out that the bondholders receive more protection than the stockholders because the latter have to support the debt claims of the former for both companies. Even though the merged firm may improve financial difficulties and further reduce the risks and costs of default or bankruptcy, the gains from low interest rates will be compensated for by the loss attached to guaranteeing each other's debt.

Financial economies of scale occur in the form of lower security transaction and flotation costs (Levy and Sarnat, 1970).[9] A large company enjoys certain advantages in financial markets that may lower the cost of capital to the firm. It enjoys better access to financial markets and gets notable cost savings when further financing is needed (Turner, 1965).[10] The costs of borrowing by issuing bonds are lower since a larger acquiring firm can probably issue bonds offering lower interest rates than a small acquiring firm's bonds. There are many fixed costs in the issuance of securities, such as stock exchange committee registration costs, legal fees, accounting and printing expenses, etc. Flotation costs are lower for larger than for smaller issues.

4.2.1.5 UNDERVALUATION

Some firms have found that it is cheaper to purchase assets through an acquisition than to replace its assets or to set up a new company, especially when the target firm's assets (i.e. real estate, machinery and equipment, or stock value) are undervalued.[11] A less expensive purchase can decrease the acquiring firm's expenses and increase its profits or value.

When the stock market is underestimating the actual worth of a firm, a merger or take-over may arise. If a company's stock market price is lower than its real value, it is an ideal target for a take-over bid. However, if the stock market is efficient, it should fully reflect all available information, whether publicly available or not. How can a company's share price be undervalued? To some extent the stock market is efficient and the share price reflects all publicly available information.[12] But there are still a lot of undervalued companies.

(1) Especially in a recessionary period, the stock market is depressed and share prices may be undervalued. The market price of a firm's shares may be significantly below the replacement costs of the assets represented by these shares.

(2) Even in prosperous times the value of a firm can be undervalued, if the firm's management is not operating the company efficiently.

(3) Private or inside information may be relevant. The staff or management of a company can have inside information which outsiders do not know. If the acquiring firm is able to access private information before it is generally available, it can purchase the shares of a company at less than their true value. Dimson and Marsh (1984)[13] indicate that security analysts may have superior information on companies. If they use this information skilfully, they may get higher profits.

(4) The influence of inflation makes the current replacement costs of assets higher than their historical book values.

4.2.1.6 PURE DIVERSIFICATION

Diversification played a major role in the mergers and acquisitions in the 1960s and 1970s in the US. Why should a company want to merge with another to diversify its risk? The reasons may include the following. First, financial synergy theory mentions that when the earnings from two companies are less than perfectly positively correlated, diversification can lead to a more stable cash flow and hence reduce the chance of bankruptcy because the losses of one firm can be compensated for by the income of the other (Lewellen, 1971). Diversification can offer managers and employees job security and opportunities for promotion. In addition, firms may find it easy to promote their products, because customers do not need to worry about after-sales service and suppliers believe they can receive their accounts receivable.

Second, some argue that shareholders can diversify their shares through the stock market more easily than could the company through acquisition. Why should one company merge with another to stabilise its earnings? Levy and Sarnat (1970)[14] argue that, in practice, investors find it impossible to diversify all of their securities through portfolio because of indivisibility, different transaction costs, the costs of acquiring information, and the difficulties of keeping track of numerous investments.

In addition, the major shareholders or the owner-managers of a company may not want to sell their stock to diversify, because this would dilute their ownership and generate a tax liability.

Third, diversification can uphold the company's reputation which would otherwise collapse if the company failed. Reputation is an intangible asset of a company which needs nurturing in the form of investments in advertisement, personnel training, research and development, and customer loyalty. If a company is failing, its assets cannot sell for their value 'in use' and the shareholders can only receive a low pay-out after liquidation.

Finally, diversification can provide an opportunity for the company's growth. Although the company can expand its scope through internal growth, a merger or take-over may enable it to achieve this goal more quickly. Companies in declining industries like to pursue new products or technologies to strengthen their enterprises' growth prospects. If a firm seeks to enter a new industry or new market and lacks the relevant production knowledge and distribution channels, this action can be very risky and/or costly. Mergers often provide a rapid and safe way of entering into new markets or industries.

4.2.2 INFORMATION AND SIGNALLING

The information, or signalling, hypothesis refers to the revaluation of the shares of firms owing to new information that is generated during the merger negotiations, the tender offer process, or the joint venture planning. Ross (1977)[15] discusses the signalling idea in financial structure decisions. He assumes that if manager-insiders have inside information about their firms which is not possessed by ordinary investors, then the choice of a financial structure signals information to the market.

There are two types of information hypothesis. The first assumes that the announcement of merger negotiations or of a tender offer may reveal information and/or signal to the market that the target share is undervalued. This may be called the "sitting on a gold mine" hypothesis (Bradely, Desai, and Kim, 1983[16]). The second argues that the new information encourages the present target management to

achieve a more efficient operating strategy on its own. We might say that this is the "kick in the pants" explanation.

Myers and Majluf (1984)[17] present asymmetric information actuality and speculate that the managers of a company often have better information than do outsiders and that both managers and outsiders understand this. When the acquiring firm's managers use common stock to pay for another firm, it may be viewed as a signal by the acquired firm and others that the acquiring firm's common stock is overvalued (Travlos, 1987).[18] Hence, the issuing of common stock yields contrary information to the bidder's return. The signalling hypothesis also indicates that cash financing is a positive signal that the bidder's cash flows and future values are likely to increase. Dodd and Ruback (1977)[19] and Bradley (1980)[20] found that the shareholders of both acquiring and acquired firms in cash tender offer realise a significant and positive abnormal return. The management of the acquired firm would accept the cash offer if they believed that the stock of their firm was undervalued relative to its received value (Hansen, 1987[21]; and Brown and Ryngaert, 1989[22]). When companies repurchase their shares, the stock market may consider this action as a signal that the managers of this company have information that its shares are undervalued and thus that it has good growth opportunities in the future.

4.2.3 MARKET POWER

Market power means that a single firm or group of firms can control or influence a product's price, quantity and characteristics. Enlarging market share means increasing the total amount or the proportion of the firm relative to other firms in an industry. The question is why increasing the firm's relative size should generate benefits. If the two firms are operating in the same market, a merger will increase market concentration and give the combined firm greater market power. This could also be obtained by the internal growth of the firm. Why is the outside merger or take-over of another business essential to yield benefits? Many possible explanations may be offered, but a merger is a much faster way to get market dominance than is a

competitive war between the firms, and it has the advantage of not increasing total capacity in a market that may not expand very much. Also market power gain means an acquiring firm bought an acquired firm for a price which is less than the expected post- merger value because after merger the acquired firm can increase its product prices and this may increase profits.

Horizontal combinations was be investigated by a competition authority (e.g. a Fair Trade Commission).[23] In addition, backward vertical integration captures the source of raw materials and forward vertical integration secures new markets for the company's product. This increases the firm's control over the whole production cycle and reduces the competition it faces. Some economists consider that intense concentration may cause some degree of monopoly, while others argue that increased concentration is usually the outcome of practical and intense competition. Edwards (1955)[24] states that the gains from market power are related to the mutual forbearance or spheres of influence hypothesis. Stigler (1963)[25] considers that in horizontal mergers, large firms have greater market share and market power, so they may have greater opportunities for collaboration. The anticompetitive activities of mutual dealing or tie-in sales will result in market power-related gains (Lorie and Halpern, 1970).[26] Singh and Montgomery (1987)[27] and Seth (1990)[28] indicate that market power can earn super normal profits. Pike and Neale (1993)[29] consider that it is easier to obtain higher earnings if there are fewer competitors. But intense competition among large companies in a concentrated industry yields a great variety in prices, types of product, quality of product, etc.. So collusion is neither easy and nor always feasible (Weston, et al., 1990).[30]

4.2.4 TAX CONSIDERATIONS

Tax considerations can be an important motive for certain mergers and acquisitions. This is particularly important in Taiwan because if the acquiring firm can comply with the government's regulatory requirements, it can enjoy some tax advantages. These tax advantages include the following:

(1) Tax exemption or deferment. Article 13 of the Statute for Upgrading Industries states that where a company is specifically approved by the Ministry of Economic Affairs to go into a merger or consolidation for the purpose of promoting reasonable operation and management, the company is exempt from all income tax, stamp tax and deed tax payable as a result of such a merger or consolidation (according to transaction price) and it may defer its land-value increment tax after the merger or consolidation until the time the land is further transferred.

(2) Carry-over of net operating loss and tax credits. Article 75 of Company Law regulates that a continuing company or a new company created by merger or consolidation shall succeed to all the rights, powers and privileges of the merged or consolidated company. A firm that is highly profitable and in the highest corporate tax bracket can acquire a company with large accumulated tax losses, and then use those losses to shelter its gain. Similarly, a company with large losses can acquire a profitable firm. In Taiwan, the losses of one company can only be offset against future profits of the same company (Article 39 of Income Tax Law). The combining firm can accommodate the acquiring firm's net operating loss backwards for five years.

(3) Accelerated depreciation. "The service life of instruments and equipment for exclusive use in research and development purposes and/or inspection of pilot products, or machinery and equipment used for energy saving purposes or as alternate energy sources may accelerate their depreciation by two years". "Based on the requirements for adjustment of the industrial structure and the improving the scale of operations and methods of production, depreciation of the machinery and equipment of specially designated industries may be accelerated by one half of the number of years of the service life of the fixed assets" (Article 5 of Statute for Upgrading Industries). The tax benefits of the acquired firm may be transferred to the acquiring firm after the transaction.

(4) Stepped-up asset basis. The acquiring firm can increase or step-up the tax basis of the acquired firm's assets to their fair market value rather than the book value and take the asset's depreciation charges on this new basis. "The appreciated value of the assets of a profit-seeking enterprise resulting from revaluation of assets made in accordance with the Income Tax Law shall not be considered taxable income" (Article 5 of the Statute for Upgrading Industries). Tax benefits can be created in a merger through the revaluation of previously depreciated assets; the advantage emerges after the increased depreciation related to this revaluation of assets is gained.

(5) The variety of future cash flow. Majd and Myers (1984)[31] observe that the government imposes taxes when the company enjoys earnings but does not share its losses when it is in a poor operating situation. So they consider that even though the acquiring and acquired firms are in profit at the time of the merger, their combination can decrease future tax expenditures when the variety of cash flows is lowered after the acquisition. At some future time, one company's earnings can be compensated for or decreased by the other's losses which results in tax savings.

4.2.5 STOCK MARKET CONSIDERATIONS

It is a special situation in Taiwan that a firm gains benefit by applying for its stock to be listed. How can a company apply for listing on the stock market? Basically, it needs to demonstrate a good profitability, it must have at least NT$ 200 millions of capital stock, a dispersion of shareholdings together with some additional requirements.[32] If it can meet these requirements and be approved by the government (that is the Securities and Exchange Commission), then the public will normally believe that this company's operating situation is very good and its future holds potential. When the company issues its shares on the stock market, the par value (NT $10) of one share may quickly increase. The shareholders of the newly listed company can make abnormal gains from the stock market. At the same time, the listed company can also enhance its public image and reputation. That is why many

companies actively apply for a listing on the stock market and this motive is one of the special merger motives in Taiwanese enterprises.

According to this argument the purpose of mergers is to generate sufficient capital stock such that firms can publicly issue under the Securities and Exchange Law and file an application with a stock exchange for listing. The economic development of Taiwan is affected by the fact that its stock market entered a bull market in 1988. If a firm wants to apply for its stock to be listed, the firm's capital has to be at least NT$ 200 million. A merger or acquisition is one way for small firms to increase their capital stock up to the required level. If they can get approval from the government for a listing on the stock market, they gain thereby.

4.2.6 AGENCY PROBLEMS

Jensen and Meckling (1976)[33] in their famous paper presented "the theory of agency". They considered that an agency problem arises when the principal (shareholders) of a company delegate to the agent (managers), who own only a very small part of the shares of the firm, power to execute actions on their behalf. The former cannot be certain that the latter will perform its tasks in exactly the manner the principal would like. The partial ownership may cause the agent to work in his/her own interest rather than in the interests of the principal. The self-interest motive of agents may weaken the agency relationship. The agency problem does not occur if an elaborate contract can be drawn up specifying all the duties of the managers and if the monitoring mechanism works well. In fact, it is difficult to specify all the conditions which managers ought to meet in their entirely. Jensen and Meckling considered that the costs involved in writing such provisions and the costs of enforcing them may not be insignificant. The limitations of the manager taking optimal actions may also decrease the profitability of the firm.

Myers and Majluf (1984)[34] mentioned that the managers of the firm often have better information that outsiders do not have. The efforts of the agent are impossible or very

expensive to supervise. Strong and Waterson (1987)[35] and Besanko, Dranove, and Shanley (1996)[36] present the problems of informational asymmetries underlying agency theory, i.e. the moral hazard problem. A moral hazard problem arises when the agent does not always take the action that the principal would wish because (s)he knows the principal lacks information to assess his/her effort. After all, the principal and the agent usually have divergent aims. Shareholders may want to maximise profits, while managers may be more pre-occupied with their own job security. Managers may take fewer risks than the shareholders would consider desirable and they may work less hard than the shareholders would wish. This self-interest problem implied by the moral hazard cannot be prevented by contract. The gains of the managers from moral hazard phenomena are usually at the expense of the shareholders.

Lambert and Larcker (1985)[37] point out that there are three conflicts between the shareholders and the managers. First, if managers are given some discretion, they may want to get non-pecuniary benefits from their actions (e.g. acquisitions of new companies or access to executive limousines, etc.). The second potential conflict relates to risk attitude. The shareholders are open to diversifying their portfolio of assets to reduce their risk. The manager's income is closely associated with the performance or earnings of his/her own company and his/her human capital is more concentrated in the company he/she works for than are shareholders' capital. So in any company's decision which involves some risk, the managers may have a more risk-averse attitude than do other shareholders. Third, in highly competitive business, the manager is focused on short-run income or earnings to indicate his/her ability, while the shareholders are more concerned with the company's longer-time interests.

Most large companies' shareholders are broadly dispersed. How can they act together to control any agency problems? In reality, agency problems may be efficiently controlled through some management and market mechanisms. Strong and Waterson (1987) consider two approaches to solving agency problems. First, shareholders can replace managers with others who are prepared to co-operate more closely with them.

Second, they can design a remuneration package to encourage managers to act in shareholders' interests.

Fama (1980)[38] states that managers face both the discipline and the opportunities provided by the markets (within and outside the company) when their performance is being appraised. The managers invest a substantial amount of their human capital in the firm. The rewards for their human capital, signalled by the managerial labour market, depend on the success or failure of the firm. The company's shareholders provide important but indirect signals to the managerial labour market when they evaluate the company's management. Although an individual security holder may not have a strong interest in seriously monitoring the company's managers, they have a strong interest in the values of the company's securities. When they buy a company's securities, it reflects their confidence that their risk-taking will bear fruit. The remuneration package can be tied to the manager's performance through bonuses, promotion and stock options (Besanko, Dranove and Shanley, 1996).

Fama and Jensen (1983)[39] discuss how the stock market offers an external monitoring device on managers' performance because stock prices are visible signals which reflect the overall ability of, and decisions made by, managers. Low stock prices bring pressure on managers to work hard and to act in the company's interests. Strong and Waterson (1987) argue that shareholders are not the only parties in the principal-agent relationship. The lenders, especially banks, also demand that some conditions must be met before granting and maintaining loans. The banks or other lenders may have different objectives from the shareholders. The former are concerned with the company's prospects and the probability of default, whilst the latter are interested in the average return on their assets. As a result, banks as principals are concerned to deflect managers from taking on high risk projects. These constraints may sometimes conflict with the interests of shareholders. From the managers' viewpoint, bankruptcy may be a much more important constraint than the shareholders and banks consider it to be, because company liquidation or insolvency is likely to be viewed as a signal by future principals or shareholders of incompetent

management. If the above mentioned mechanisms are not enough to effectively control agency problems, the take-over mechanism acts as a last resort to the management control problem (Manne, 1965).[40] If managers are not using assets to maximise the shareholders' value because of inefficiency or agency problems, a merger or take-over is an effective method for effectively reallocating assets and making better use of resources.

4.2.7 FREE CASH FLOW

Jensen (1986)[41] first identified the "free cash flow" hypothesis when he discussed the problem of agency costs. Free cash flow refers to the operating cash flow which exceeds that required to pay for all the profitable investments available to the firm; that is, for financing all projects that have positive net present values.

Jensen considers that when a firm generates free cash flow, a conflict of interest between managers and shareholders over the fate of the surplus cash emerges. This free cash flow should be paid out to shareholders if the firm is to maximise its shareholders' wealth. Unfortunately, managers may not want to pay free cash flow to the shareholders, because (1) any decrease of the resources under their control means that their power is reduced, (2) and, if they return surplus funds, they may need to recall it at some point to finance another project if some beneficial investment opportunity is identified. Another motive relating to the use of surplus funds for merger purposes may be based on the interest of shareholders. King (1989)[42] indicates that the tax system can affect the level of acquisitions. If capital gains' taxes are lower than income tax on dividend income, then the shareholder may favour using cash to acquire another firm or to repurchase his/her own shares. According to Article 167 of Company Law "a company shall neither redeem nor purchase its own shares nor accept any of them as collateral under any pledge agreement". If a company is not able to buy its own shares, it can buy someone else's instead. At present, securities transaction gains are ceased to levy commencing from January 1, 1990.[43] So the acquiring firm can

exploit its surplus cash to transact another target firm to substitute capital gains' taxes for ordinary income taxes.

Jensen also states that firms have large excess cash when they enjoy good performance and do not payout to shareholders or redeploy the cash by acquisition. Such firms are often the target for take-over by other firms. If managers cannot use excess cash to maximise the firm's value, then resources are not being efficiently allocated. A merger or take-over may be brought by those who can effectively use the surplus funds and make better use of resources.

4.3 THE EMPIRICAL LITERATURE RELATING TO THE MOTIVES FOR MERGERS AND ACQUISITIONS IN THE US AND TAIWAN

4.3.1 EFFICIENCY THEORIES

4.3.1.1 US EMPIRICAL STUDIES

The empirical findings of the US studies basically support the theory of synergy. Chatterjee (1986)[44] devised an event study to analyse cumulative abnormal returns (CAR) and dollar gains for acquiring firms, targets and rivals of targets. He compared three classes of resources that contribute to the creation of value. These resources are cost of capital related (resulting in financial synergy), cost of production related (resulting in operational synergy), and price related (resulting in collusive synergy). He concludes that relative size appears to be an indicator of financial synergy. If financial synergy can be fully exploited (e.g. if the relative size of the acquiring firm is large), then the merger-related gains will be greater than those obtained from operational synergy. Shelton (1988)[45] built on the concepts of related-complementary and related-supplementary developed by Salter and Weinhold (1979).[46] He divided four strategic fits--unrelated, related supplementary, related complementary and identical--between a target and a bidder to explain the variance in value created in mergers. He found that acquisitions which permit the bidder access to new markets

management. If the above mentioned mechanisms are not enough to effectively control agency problems, the take-over mechanism acts as a last resort to the management control problem (Manne, 1965).[40] If managers are not using assets to maximise the shareholders' value because of inefficiency or agency problems, a merger or take-over is an effective method for effectively reallocating assets and making better use of resources.

4.2.7 FREE CASH FLOW

Jensen (1986)[41] first identified the "free cash flow" hypothesis when he discussed the problem of agency costs. Free cash flow refers to the operating cash flow which exceeds that required to pay for all the profitable investments available to the firm; that is, for financing all projects that have positive net present values.

Jensen considers that when a firm generates free cash flow, a conflict of interest between managers and shareholders over the fate of the surplus cash emerges. This free cash flow should be paid out to shareholders if the firm is to maximise its shareholders' wealth. Unfortunately, managers may not want to pay free cash flow to the shareholders, because (1) any decrease of the resources under their control means that their power is reduced, (2) and, if they return surplus funds, they may need to recall it at some point to finance another project if some beneficial investment opportunity is identified. Another motive relating to the use of surplus funds for merger purposes may be based on the interest of shareholders. King (1989)[42] indicates that the tax system can affect the level of acquisitions. If capital gains' taxes are lower than income tax on dividend income, then the shareholder may favour using cash to acquire another firm or to repurchase his/her own shares. According to Article 167 of Company Law "a company shall neither redeem nor purchase its own shares nor accept any of them as collateral under any pledge agreement". If a company is not able to buy its own shares, it can buy someone else's instead. At present, securities transaction gains are ceased to levy commencing from January 1, 1990.[43] So the acquiring firm can

between 1974 and 1979. He used postal questionnaires, interviews, companies' prospectuses, etc. to collect his data. He found that the most important merger motives were to reap the benefits of economies of scale, to improve operating management and to increase growth. This indicates that operating synergy is a major consideration for these listed companies.

Wu Y. C. (1982)

Wu analysed data from the Industrial Bureau of the Ministry of Economic Affairs covering firms which applied for merger approval between 1975 and 1980. Fifteen firms answered the questionnaire and 17 firms were interviewed. The dominant merger motives were to improve economies of scale, to increase corporate financing, to diversify and to increase market share --- indicating that operating and financial synergy are the most important factors at play.

Wu, C. M. (1984)

Wu analysed two relatively significant mergers where the acquiring firms were both listed companies in his study. These two transactions occurred in 1977 and 1981 respectively. The principal merger motives of the first case were to enhance market competitiveness, to overcome corporate financial difficulties, to improve operating efficiency and also as a response to government encouragement. The situation of the second case was that the acquired firm was experiencing operational and financial difficulties but had new and good machinery and equipment. Meanwhile, the acquiring firm wanted to exploit the target firm's machinery and equipment to expand its production scale and improve the acquired firm's operating efficiency. The study indicates that operating and financial synergy were the most important motives behind the mergers.

Sung (1989)

Sung selected 500 manufacturing companies for his postal sample and achieved 67 effective respondents. Only 20 of these companies had been merged with or had acquired another company. He used T-tests to examine the importance of the motive

for mergers and acquisitions. He found that management cost reductions, combining personnel and technology to improve R&D, controlling marketing channels and acquiring raw materials were significant motives. Achieving economies of scale was an important merger motive but was not statistically significant. He also found that tax considerations were the least important merger motive in his sample.

Lin (1990)

Lin's study was based on lists from the Industrial Bureau of the Ministry of Economic Affairs together with reports from newspapers and magazines about merger and take-over activities in the period 1985-89. The effective postal questionnaire response cases were 42. He found that the most important merger motives were enlarging the enterprise's profitability, increasing the firm's growth, enjoying economies of scale, promoting reasonable operations and management and enhancing the firm's competitiveness. His findings indicate that operating synergy is a major consideration in merger activities.

Chen, C. R. (1990)

Chen's study focused on one acquisition event which happened in January 1990. He reviewed this case and found that operating and financial synergy, together with a desire to apply for listing on the stock market, were the most apparent merger motives.

Wu, A. N. (1992)

Wu analysed 13 acquiring companies which had been involved in a merger or take-over event between 1985 and 1988 --- all of them listed firms and applying for approval by the Industrial Bureau of the Ministry of Economic Affairs. To improve the reliability of her findings, she used financial statements and companies' prospectuses as her data. She found that the primary motivations were to pursue monopoly power, to increase market share and to achieve economies of scale. Thus, the merger motives were to achieve operating synergy and to strengthen market power.

Yang (1996)

As his research sample Yang chose the top 1,000 Taiwanese manufactures, with the exception of 10 government-controlled enterprises. There were 94 valid questionnaires, i.e. 9.50% of those initially dispatched. These companies included ones which had merged with or acquired another company between 1979 and 1995. The findings show that strengthening the enterprise's growth, promoting operational and management modernisation, diversifying, increasing market share and achieving economies of scale are the most important motives for mergers and acquisitions. This means that efficiency theories concerning market power and diversification can explain merger and acquisition motivations.

These studies indicate that almost all previous empirical research into the merger motives of Taiwanese enterprises use just simple weighted average or univariate tests on limited samples. Wu, C. M. (1984) and Chen, C. R. (1990) took a case study approach (with just one or two samples) to analyse their research questions. Their results cannot be applied to the general population. Huang (1977), Chang (1980), Wu, Y. C. (1982) and Lin (1990) used questionnaires to analyse their data, but their questions were not based on theories of motives for mergers and acquisitions. Consequently, their results cannot for the most part prove or critique the theory. Yang's (1996) study covers 17 years --- a period when Taiwan's macroeconomic environment changed significantly and where Yang's respondents might not have been personally involved in the acquisition event. Thus, it is not easy to discover the real and detailed motives for mergers which occurred over 10 years prior to the data collection period. Most of these studies did not use statistical tests to prove their results. The findings of these studies are sometimes unclear and sometimes downright contradictory.

Empirical research indicates that the financial synergy motive is weaker than the operational synergy motive, and is not the primary impetus for mergers and

acquisitions in Taiwan. While financial synergy emerges as a theme from these studies it is not as significant as operational synergy.

The empirical studies used questionnaires or case studies, except for Wu, A. N. who used financial statement data to analyse take-overs. In questionnaires or face-to-face interviews, questions were pitched to senior manager. As we have seen, operational synergy emerged as a significant motive. The reasons may be as follows:

1. There are about 1,000,000 companies in Taiwan, but only about 1,400 with assets over NT$ 200,000,000 in 1995 (the exchange rate of Pound Sterling to New Taiwan Dollar is about 1:42).[57] This means that most firms are small or medium-sized. If they can merge with other companies, this tactic may help them achieve economies of scale.

2. In Taiwan most mergers and acquisitions are horizontal. Horizontal mergers are more likely to yield operational synergy than other types of merger. Empirical studies give support to the importance of operational synergy, but they do not show the same synergetic results in production, marketing, research and development, etc.

4.3.2 MARKET POWER

4.3.2.1 US EMPIRICAL STUDIES

Jensen (1984)[58] combined evidence from four studies of mergers and his analysis indicates that merger gains do not come from the merger's creation of monopoly market power but from its productive economies and synergy. If companies gain from market power, their industrial competitors can benefit from higher prices, and enjoy a significant increase in their stock prices and profits. Where the Federal Trade Commission (FTC) or the Antitrust Division of the Justice Department cancel or challenge the merger, the rivals' stock prices then fall. However, the evidence indicates that competitors' stock prices do not fall on the mere announcement of

antitrust prosecution or of cancellation of the acquisition. Feinberg (1985)[59] tested the mutual forbearance theory of conglomerate behaviour at both organisational and industrial levels. He found that organisations have a significant effect in increasing price-cost margins. Firms may collude after a merger but this is not easy to achieve without mutual forbearance. Eckbo (1983)[60] examined abnormal returns to major horizontal competitors of target firms around merger proposal and antitrust complaint announcements in order to test the hypothesis that horizontal mergers gains come from collusion. The collusion hypothesis holds that rivals of the combining firms can expect to benefit from the news of a horizontal merger which significantly decreases output and increases product prices and/or lowers factor prices. When the subsequent news comes out that the merger is to be challenged by the antitrust enforcement agencies, mergers then reverse the expectations of monopoly benefits and cause rivals to display negative abnormal performance. Eckbo found that the observed sequence of abnormal returns does not conform to the pattern predicted by the collusion hypothesis. There is little evidence indicating that the mergers have collusive, anticompetitive effects. Stillman (1983)[61] uses stock returns from a sample of rivals to 11 horizontal mergers attempted between 1964 and 1972 which were challenged by the government (the Justice Department and the FTC). His study tests the hypothesis that horizontal mergers must result in higher product prices and hence increases profits for rivals to the merging firms. His results indicate that there is no clear support for the existence of large gains.

In conclusion, the result of US empirical studies indicate that the market power hypothesis is relevant in some situations but is not of great concern.

4.3.2.2 TAIWANESE EMPIRICAL STUDIES

Empirical studies of market power in Taiwan have mainly concentrated on the relationship of mergers to market share (Huang, 1977[62]; Chang ,1980[63]; Wu, Y. C., 1982[64]; Wu, C. M., 1984[65]; Sung, 1989[66]; Chen, C. R., 1990[67]; Lin, 1990[68]; Wu, A. N., 1992[69]; Yang, 1996[70]). Findings indicate that the motive of market power is

sometimes unimportant (Huang, 1977; Chang ,1980; Wu, Y. C., 1982; Wu, C. M., 1984; Chen, C. R., 1990; Lin, 1990) yet at other times it is important or statistically significant (Sung, 1989; Wu, A. N., 1992; Yang, 1996).

Huang (1977) used a simple weighted average method to analyse merger motives and found that increasing market share is a fairly unimportant impetus. Chang (1980) also used this method to understand the reasons underpinning mergers. He discovered that fostering business growth is one factor behind acquisitions but it is not the most significant goal. Wu, Y. C. (1982) applied the same statistical method and produced findings consistent with Huang's and Chang's. Although increasing market share is one merger motive, it is not the decisive reason. Wu, C. M. (1984) examined two cases to study merger motivation and noted that that market share is not significant. Sung (1989) found this motive significant at 10% significance level. Chen, C. R. (1990), taking a case study approach, found that the market share motivation did not feature in that particular case. Lin (1990) listed 18 motives for merger and acquisitions and found that increasing market share scored 8th. The average value of market share motivation can be classified as being of "minor importance". Lin also used factor analysis to identify the structure of the motives for mergers and acquisitions. He found that acquiring market share, distribution channels and know-how was one of the main drivers underpinning mergers and acquisitions in Taiwanese enterprises. Wu, A. N. (1992) analysed listed companies' financial statements to test the motivation of market share. Her results show that the market share of acquiring firms increases significantly post-transaction. This indicates that the pursuit of market share is an important merger motive for Taiwanese listed companies. Yang (1996) analysed the top 1000 manufacturing companies and found that increasing market share is an important motivation for mergers and acquisitions. Yang also used factor analysis to extract the main constructions of the motives for mergers and acquisitions. His results indicate that enterprises hold an "optimistic growth strategy" as a result of their business combinations.

Most of these empirical studies aimed to investigate the issue of increasing market share and used simple weighted average or/and factor analysis to analyse their data. Huang (1977), Chang (1980), Wu, Y. C. (1982), Wu, C. M. (1984), Sung (1989), Chen, C. R. (1990), Lin (1990) and Wu, A. N. (1992) extrapolated from very few samples (1 to 42 cases) to analyse their research questions. Their sample sizes are not big enough to enable further or in-depth research, and their results may not be generalisable to the whole population of companies. Yang's (1996) is the only study working on more than 42 but his research period is so long (17 years) that his respondents may not really remember or be able to reconstruct the true motives for mergers. Overall the findings of the above studies are sometimes equivocal and sometimes completely contradictory.

Normally, it is not easy to draw conclusions as to the relative importance of different motives for mergers and acquisitions when questionnaires or face to face questions and answers are used. Although the government encourages small and medium enterprises to merge to increase their economies of scale, improve their research and development, etc. so as to face the more stringent competition of domestic or international markets, firms do not always like to own up to the motive of market share as their primary consideration. If a firm admits that its motive is to make monopolistic or oligopolistic gains, its activities may become a topic of unwelcome public attention or may lead to an investigation by antitrust authorities (The Fair Trade Commission). Therefore the importance of this motive may be underestimated. Because Wu, A. N. (1992) used financial statements to examine companies' merger motives, her results may be more objective. But her sample (13 firms) is too small for our purposes here. The low proportion of firms involved in mergers and take-overs in her study may not be representative of Taiwanese enterprises' mergers and take-overs, taken as a whole.

4.3.3 TAX CONSIDERATIONS

4.3.3.1 US EMPIRICAL STUDIES

Tax considerations have been considered an important factor behind mergers and acquisitions in the US. Smirlock, Beatty, and Majd (1986)[71] analyse and review the results of many previous empirical studies relating to tax-related incentives and their affect on merger activity and suggest that tax code provisions are a significant influence. These tax incentives include accelerated depreciation, carryover of net operating losses, carryover of R&D credits, and interest deductions. Smirlock et al. also find that the variability of the merged company's cash flow will be diminished if one firm is less risky than the other, even if they are entirely correlated. A decrease in the variability of cash flows implies that the probability of default on debt payments is reduced and this may lead to an increase in debt capacity in a merger (Lewellen, 1971).[72] The deductibility of interest payments on debt indicates that increases in debt capacity will enlarge the firm's value because the combined firm can borrow more than the two firms taken separately, or the combined firm can borrow the same amount at a lower interest rate. Auerbach and Reishus (1986)[73] estimated the use of tax losses and credits and found that tax benefits were not a significant factor in the majority (80 per cent) of large mergers. Majd and Myers (1984)[74] found that even if both companies concurrently enjoy profits they can reduce their future tax liability following the merger. One company's profits can be reduced or offset by the other's losses. This results in tax savings.

4.3.3.2 TAIWANESE EMPIRICAL STUDIES

The results of empirical studies indicate that tax considerations are not important or have not proved statistically significant (Huang, 1977[75]; Chang, 1980[76]; Wu, Y. C., 1982[77]; Sung, 1989[78]; Lin, 1990[79]; Wu, A. N., 1992[80]; Yang, 1996[81]).

Huang (1977) lists 16 possible merger motives and posed them to bidding firms. He found that "tax benefits" is not an important motive. Chang (1980) found that "tax deduction and government encouragement" was only of minor importance. Wu, Y. C. (1982) indicates that "tax deduction, exemption or deferment" is a "less important"

acquisition factor. Sung (1989) shows that the motive of tax deductions or deferments is of the least importance and is not significant. Lin (1990) offered 18 potential combination reasons to his acquiring firms for their comment and found that "tax deduction, exemption, deferment and government encouragement" emerged in a lowly 16th place. Wu, A. N.'s (1992) results indicate that "tax deduction or exemption benefits" is not significant between listed acquiring and non-transaction firms. Yang (1996) finds that "enjoying tax benefits from the regulation of the Statute for Encouragement of Investment" comes 15th out of 18 possible merger motives.

On balance, tax considerations are not an important merger motive for Taiwanese enterprises. Sung's study even found that tax considerations were of least relevance to mergers and acquisitions in Taiwanese companies. These results are puzzling. If firms do not have a tax motive, why do they apply for merger approval to the Ministry of Economic Affairs? If they do not especially want tax exemptions or deductions, they may simply merge on their own initiative and bypass the need to prepare documents and spend money to gain approval. Two alternative interpretations may be placed on the empirical findings.

1. Tax considerations may not be the primary reason for merging. When a firm decides a merging strategy, it naturally chooses the method that most reduces tax. It is not the purpose of the merger, but just one of its consequences, that the tax liabilities of the firm are reduced.

2. Most of the empirical studies collected their data by questionnaires or face-to-face interviews. These methods carry the weakness that respondents' answers may not reveal the real reason for mergers and acquisitions. The company may claim other reasons (e.g. economies of scale or diversification) to answer the question. In particular, respondents may not like to admit that tax exemptions or deductions are the primary reason for their formal applications. The government does not encourage small and medium enterprises to merge for the purpose of offering them tax incentives (Article 38, Statute for Encouragement of Investment).

4.3.4 STOCK MARKET CONSIDERATION

4.3.4.1 US EMPIRICAL STUDIES

In Taiwan a firm gains from applying for its stock to be listed. US empirical research does not reveal any stock market motive for US mergers and acquisitions.

4.3.4.2 TAIWANESE EMPIRICAL STUDIES

Lin (1990) first analysed acquiring firms' questionnaires and found that stock market considerations emerged as an unimportant merger motive (17th of the 18 motives). Second, he compared the high and low post-transaction operating performance firms' merger motives and found that the difference between these two groups concerning the issue of stock market considerations was not significant. Wu, A. N. (1992) examined the dates of acquiring companies' listing (i.e. whether before or after 1 August 1985) and used a Point Biserial Correlation Test to estimate stock market considerations. The results were not statistically significant. Yang (1996) found that the average value of stock market considerations was the least (placed last out of the 18 merger motives) important merger factor. In the single case study of Chen, C. R. (1990), the result was significant. Two newly-founded firms applied for listing on the stock market in 1989. This was a bull market period in Taiwan's stock market. Approval by the Securities and Exchange Committee meant that the firms earned giant gains from the stock market.

The Taiwanese stock market entered a bull phase in 1988. If a firm could have its stock listed, shareholders could gain from the stock market price rises. The empirical studies indicated different results on this issue. As Chen's (1990) work is confined to one case, his findings cannot be generalised to other companies. Lin (1990), Wu (1992), and Yang's (1996) studies have larger samples (13 cases to 94 cases) and all

of these indicate that the motive of stock market considerations is of the least importance or is not statistically significant.

If an enterprise's application for listing on the stock market is approved by the Securities and Exchange Commission, it can usually earn extra benefits from the stock market. However, such probable stock market gains would not be made explicit in the firm's application to the government for permission to merge. The government has set certain criteria for companies wishing to apply for a listing on the stock market.[82] First, the company has to have been in existence for over five full years. Second, the amount of capital stock for the most recent two years must exceed NT$ 200,000,000. Third, the operating profits and before-tax net profits for the most recent three years must be more than 5% of the amount of paid-in capital in its final accounts. Fourth, the before-profit-distribution net worth for the most recent year must represent one-third (1/3) or more of the total assets. Fifth, the number of holders of name-bearing stock certificates must not be less than two thousand (2,000). These requirements are not easy to meet and this may be another reason why previous empirical studies indicate that stock market considerations are unimportant merger motives.

The limitation on the amount of capital stock (at least NT$ 200,000,000) indicates that if the combining firm's capital does not exceed NT$ 200,000,000, then there is no stock market consideration. Lin (1990) did not further classify the firms' capital in his study so his result may be vague. Wu (1992) used only listed companies as the research sample, so the comparison of stock market considerations may not be correct. As Yang (1996) examined the top 1,000 manufacturing companies, the enterprises' capital in his sample is inclined to be very large. Thus, his conclusion may well be unrepresentative of all mergers.

4.3.5 AGENCY PROBLEMS

Agency problems often occur when managers own just a small proportion of the shares of a company. While shareholders can use a portfolio to diversify their risk,

the manager has human capital which is uniquely or largely related to the company for which s/he works and so can not diversify his/her employment risk. The manager might pursue sales-maximisation, growth-maximisation or any of a large number of personal goals at the expense of the interest of shareholders. S/he can make personal gains from mergers. Marris (1964)[83], Mueller (1969)[84] and others have presented evidence which show that the rewards to managers are more closely and positively related to the size as opposed to the profits of their firm. Lewellen and Huntsman (1970)[85] found that company profits have a strong and persistent influence on managers' rewards, whereas sales seem to have little impact.

4.3.5.1 US EMPIRICAL STUDIES

The US empirical studies support the theory of agency. Amihud and Lev (1981)[86] selected 309 of Fortune's 500 largest industrial US firms which had the required data on sales, income, and equity for the entire period and checked the FTC Statistical Report on Mergers and Acquisitions to determine the number and type of acquisitions carried out during the period 1961-1970. Amihud and Lev consider that managers' income mainly comes from their employment institute. Hence, the risk to managers' income is discrete from the firm's risk. Risk-averse managers may promote conglomerate mergers to steady the firm's income stream, to diversify their employment risk, and even to avoid the occurrence of bankruptcy. The empirical findings show that manager-controlled firms engage in more conglomerate acquisitions than do owner-controlled firms. The operations of manager-controlled companies are also more diversified than owner-controlled companies. The results are consistent with the argument that managers engage in conglomerate mergers so as to decrease their undiversifiable employment risk. These findings are consistent with the managerial motive. Walsh's (1988)[87] research comprised an experimental group of 55 acquired companies and a control group of 30 matched companies not involved in any merger and acquisition activity over the years 1975 to 1979. The control group of companies were of comparable asset size and the average ages of the managers in each sample were not significantly different. Walsh analysed the turnover of top

management to gauge how a merger or acquisition affects the management of a target company. He followed the employment situation of acquired firms' top managers for 5 years from the date of the merger and found a significantly higher rate of turnover of acquired company's top managers than of non-merged firms' top managers.

4.3.5.2 TAIWANESE EMPIRICAL STUDIES

There are some studies which mention and explain the theory of agency (Chen, C. R. 1990[88]; Lin, 1990[89]; Wu, A. N. 1992[90]; Yang 1996[91]). Chen, C. R. studied a single firm where the owner was also the manager. On this basis, he assumed that agency problems did not exist in this company. Lin considered that managers thought more about their own interests than the company's interests when merging, and that managers would sacrifice stockholders' interests to achieve their aims (of risk diversification or of more power in a larger company). His questionnaire-based study indicated that these results are statistically significant. Wu, A. N. took the shareholding of managers (including managers, board directors, and shareholding of over 10% of major shareholders) as a measured variable. This study hypothesised that the more managers have a shareholding stake, the more motivation there will be for mergers. She tested the empire-building theory and found that the result was not statistically significant. Wu, A. N. further tested for differences between acquiring and non-acquiring firms. This empirical study indicated that differences between acquiring and non-acquiring firms are not statistically significant. But Wu's hypothesis is apparently in conflict with the theory of agency problems. Agency problems arise when managers own just a small part of the shares of a company. The fewer managers sharehold, the more agency problems will arise. Yang found that the motive of improving managers' social position is an important merger consideration and inferred that agency problems exist.

Chen, C. R. took one case study to examine agency problems, but his conclusion cannot be generalised to other firms. Lin's agency problem variables include increasing the enterprise's growth, promoting operational and managerial

rationalisation, diversifying risk, increasing market share, acquiring brand marks and patents, etc. These variables are also potentially associated with "shareholders' profit-maximisation", so it is not reasonable to infer that managers of acquiring firms engage in mergers and acquisitions so as to maximise their personal gains at the expense of shareholders. These studies do not permit a decisive conclusion to be drawn because Lin's and Yang's studies support the idea of agency problems whilst Chen's, C. J. and Wu's, A. N. do not.

Theories and empirical studies of the motives for mergers and acquisitions in the US and Taiwan are presented in Tables 4-2 and 4-3 respectively.

4.4 CONCLUSION

As the economic environments, governmental regulations, and character of business differ between in the US and Taiwan, so the relative importance of each motive for mergers and acquisitions varies between the two countries. Here we summarise the empirical findings and provide a brief conclusion.

1. According to the studies, both Taiwan and the US support the hypothesis of operational synergy. Operational synergy may be the most significant motive for mergers and acquisitions in Taiwan. The average size of Taiwanese enterprises is smaller than those in the US and most Taiwanese mergers and acquisitions are horizontal. If Taiwanese firms do merge, it is easy for them to increase the number of products they offer and to achieve economies of scales. Most of the empirical studies concerning this motive and relating to Taiwan deploy case studies and/or questionnaire surveys. The conclusions of case studies cannot be applied to the general population. The questions posed in some of the postal surveys were not based on theories of motives for mergers and acquisitions. Consequently, the results cannot usually prove or refute the theory.

2. The empirical studies relating to the US give stronger support to financial synergy arguments than to operational or managerial synergy ones. The empirical studies of Taiwan point the opposite picture. In Taiwan, issues of financial synergy are not significant. The difference in results may be accounted for by differences in the banking or financing systems of each country.

3. The results of US and Taiwanese empirical studies indicate that the market power hypothesis is relevant in some situations but is not of great concern. Typically, enterprises do not care to admit that market share is their major merger motive, especially when their views are elicited through interviews or postal surveys. If a firm admits that its merger motive is to make monopolistic or oligopolistic gains, the firm it may invite censorious comment from the public or may lead to an investigation by antitrust authorities. Therefore, the importance of this motive may be underestimated.

Though merging firms may try to achieve market power through collusion, it is, in fact, difficult to do so. The reasons are as follows.

(1) Legal limitations and government supervision. In the US, the Federal Trade Commission Act (1982), the Hart-Scott-Rodino Antitrust Improvement Act (1976), the Celler-Kefauver Act (1950), the Wheeler-Lea Act (1938), the Clayton Act (1914) and the Sherman Antitrust Act (1890) work to supervise business activity so as to prevent monopolistic or oligopolistic behaviour. In Taiwan the Fair Trade Law (1991) restricts certain types of business behaviour. If firms intend to collude so as to monopolise a market or product, the regulatory authorities may investigate and they have the power to prohibit any such actions.

(2) International free trade. In a closed economy, a monopolistic or oligopolistic market may easily emerge. In an open economy, international competition will make this more difficult because monopolistic profits may be reduced by competition from imports.

4. Though tax regulations differ between the US and Taiwan, the empirical findings in both countries suggest that this is not a significant concern. The evidence indicates that tax considerations are not a major motive for mergers and acquisitions. This is a puzzling result for Taiwan. If firms do not have the motive of securing tax advantages, why do they apply for merger approval to the Ministry of Economic Affairs? If they do not want to get tax exemptions and deductions, they can merge independently and do not need to prepare documents and expend resources to gain approval. Two alternative interpretations may be placed on the empirical studies. (1) Tax considerations may not be the primary reason for mergers. That is, when a firm decides to merge for other reasons, it will also naturally choose the method that most reduces tax. (2) Firms may not be willing to acknowledge their tax motive.

5. In Taiwan studies on the benefits of a stock market listing yield differing conclusions. Chen's study indicates it is significant, but the findings of a single case study cannot be generalised to all mergers and acquisitions. Wu, A. N. used listed companies and Yang examined the top 1,000 manufacturing companies; both found that stock market considerations are not an important merger motive. These firms' assets are apparently larger than most so their results are likely to contain a bias. In addition, even if stock market considerations were a genuine concern, it is unlikely that firms would make this explicit in their bids to government for permission to merge. The government sets certain criteria which firms must comply with if they are to gain a listing on the stock market. These requirements are not easy to meet. This may provide another reason why previous empirical studies indicate that stock market considerations are the least important merger motive in Taiwan.

6. US empirical studies support the idea of agency problems in that country. Taiwanese findings are different. The premise of agency problems is that the owner and the manager are not the same person. The family business is still very popular in Taiwan such that the interests of the owner are synonymous the interests of the manager. Thus, the agency problem theory is not especially relevant in Taiwan.

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CHAPTER 5

AN EMPIRICAL STUDY OF THE MOTIVES FOR MERGERS AND ACQUISITIONS

5.1 INTRODUCTION

In this chapter we analyse the motives for mergers and acquisitions in Taiwanese enterprises between 1990 and 1995. The relative frequency of different reasons is discussed in the following section. The relative importance of different acquisition motives may vary with the size of the acquiring firms. So in the third section the relative importance of different motives as held by four subgroups of acquiring firms is discussed. The acquiring enterprises' merger motives classified by business group is described in the fourth section. These are then tabulated against the type of transaction--horizontal, vertical, congeneric and conglomerate--and the results are presented in the fifth section. The sixth section describes the correlation between the reasons for mergers and acquisitions and the total pre-transaction assets of the acquiring enterprises. The correlation between merger motives and changes in the assets of acquiring enterprises following the transaction are discussed in the seventh section. Factor analysis of the many reasons for mergers and acquisitions is presented in the eighth section. The final section offers some conclusions.

5.2 THE RELATIVE IMPORTANCE OF DIFFERENT MERGER MOTIVES TO ACQUIRING FIRMS

This section seeks to elucidate which merger and acquisition motives assumed greatest importance for acquiring enterprises in Taiwan between 1990 and 1995. It is also necessary to establish whether certain merger incentives such as tax considerations or applying for a listing on the stock market play a part in shaping the decision.

Questionnaire responses are used as the basis for identifying the motives for mergers and acquisitions of acquiring firms.

Table 5-2-1 indicates that the four most important reasons were reducing administrative expense, combining complementary resources, achieving economies of scale and improving finance management efficiency. The average values were 2.322, 2.596, 2.629 and 2.800 respectively. These motives ranged between 'fairly important' and 'important'. This indicates that operational synergy is a fairly important merger motive for Taiwanese enterprises. The results echo those found in previous empirical studies in Taiwan (Huang, 1977[1]; Chang, 1980[2]; Wu, Y. C., 1982[3]; Lin, 1990[4]; Wu, A. N., 1992[5]; Yang, 1996[6]).

The least important incentives were acquiring brand marks, patents or copyright technologies, controlling material resources, buying below replacement cost, and diversifying risk. Their average scores were 3.934, 3.748, 3.722 and 3.679 respectively which can be classified as 'slightly important'. The results indicate that the economies of vertical integration, buying below replacement cost and diversification are not important merger motives for Taiwanese enterprises between 1990 and 1995.

The average values of increased market power and enhanced market competitiveness were 2.869 and 2.864 respectively. This indicates that market factors are important motives for Taiwanese enterprises' acquisitions. Previous empirical studies of market power in Taiwan have mainly concentrated on the relationship of mergers to monopolies or oligopolies. According to these previous results obtained by case studies, questionnaires or financial data analyses, the motive of market power is not statistically significant (Huang, 1977[7]; Wu, Y. C., 1982[8]; Sung, 1989[9]; Lin, 1990[10]; Li, 1991[11]; Wu, A. N., 1992[12]; Yang, 1996[13]). In the western world empirical evidence is more equivocal on this point. In horizontal mergers, firms have greater opportunities for collusion (Stigler, 1968).[14] The anticompetitive activities of mutual dealing or tie-in sales result in market power-related gains (Lorie and Halpern, 1970).[15] There is no significant evidence showing that horizontal mergers necessarily produce collusive,

anticompetitive effects (Eckbo, 1983).[16] They have a significant effect in increasing price-cost margins where collusion is feasible but difficult to achieve without mutual forbearance (Feinberg, 1985).[17] Market power can result in firms earning super normal profits (Singh and Montgomery, 1987).[18]

The average values of applying for a listing on the stock market and tax considerations were 3.620 and 3.347 respectively. These motives thus range between 'important' and 'slightly important'. As shown in Table 5-2-2, even though there are 25 and 44 enterprises respectively which considered that applying for a listing on the stock market was a 'very important' or 'fairly important' merger motive, there are 96 enterprises which chose 'not at all important' as their score on this issue. Similarly, there were 38 and 40 firms respectively which considered that tax considerations were a 'very important' or 'fairly important' merger motive but 78 firms claimed that this reason was 'not at all important'. The results indicate that a listing on the stock market or tax considerations were very important merger motives for a few companies in Taiwan in the 1990s but not for a majority.

Table 5-2-3 shows that the cases and amounts of tax exemption (Business Income Tax, Stamp Tax, Deed Tax) due to implementation of the Statute for Encouragement of Investment (abolished on 29 December 1990) or the Statute for Upgrading Industries (initiated on 29 December 1990) were few between 1990 to 1995. The cases and amounts of Land Value Increment Tax were large but this tax can be deferred and is paid by the acquiring enterprise at the time the land is subsequently transferred. The data verify that this tax consideration is important for a few companies but does not apply to the majority.

According to Article 5 of the Statute for Upgrading Industries, if the acquired firm buys "instruments and equipment for exclusive use for research and development purposes and/or inspection of pilot products, or machinery and equipment used for energy saving purposes or as alternate energy sources" then the depreciation on these items may be accelerated by two years. "Based on the requirements for adjustment of

the industrial structure and improvement of the scale of operations and methods of production, depreciation of the machinery and equipment of specifically designated industries may be accelerated by one half of the number of years of the service life of fixed assets as prescribed in the Income Tax Law". If the acquired firm has enjoyed the above tax break, the acquiring firm can inherit this benefit and continue the assets' depreciation over one year or several years within the service life of such assets until the permissible depreciation has completely run its course. If the acquiring firm showed losses in the preceding five years, the combined firm can swallow the acquiring firm's net operating loss and deduct it from its net income.[19] In addition, tax benefits can be created in a merger through the revaluation of previously depreciated assets. A merger permits previously depreciated assets to be revalued; thus the advantage becomes tangible after the increased depreciation related to this revaluation of assets.

Previous empirical studies indicate that tax considerations (Chang, 1980[20]; Wu, Y. C., 1982[21]; Sung, 1989[22]; Lin, 1990[23]; Li, 1991[24]; Wu, A. N., 1992[25]; Yang, 1996[26]) and applying for a listing on the stock market (Lin, 1990[27]; Li, 1991[28]; Wu, A. N., 1992[29]; Yang, 1996[30]) are not statistically significant merger motives in Taiwanese enterprises. Sung's study even found that tax considerations were the least important motive. These results are puzzling. If firms are not concerned about tax considerations, why do they apply to the Ministry of Economic Affairs for special approval to merge and consolidate? If this issue is of such negligible significance, they could simply merge in a private arrangement and bypass the time and expense involved in getting approval. This study shows that tax consideration is an important factor for a few companies but is not verified for the majority. The relatively large sample and in-depth analysis of this research resolves the puzzling features of tax and stock market considerations in Taiwanese enterprises.

5.3 THE RELATIVE IMPORTANCE OF DIFFERENT MOTIVES AS HELD BY FOUR SUBGROUPS OF ACQUIRING FIRMS

The relative importance of different acquisition motives may vary with the size of the acquiring firms. The government recognition standards for medium & small businesses are that the firms' actual capital amount does not exceed NT$ 40 million; that their total assets do not exceed NT$ 120 million (Manufacturing and Construction); or that their business revenues from the previous year do not exceed NT$ 40 million (Transportation, Warehouse & Storage, Telecommunications and other services).[31] If a company wants to apply for a listing on the stock market, its paid-up capital must be NT$ 200 million or more (Article 5 of the Taiwanese Stock Exchange Corporation Rules Governing Examination of the Listing of Securities). In the light of government regulations and the distribution of our sample, we divided the acquiring firms into four subgroups based on the size of their total pre-transaction assets. The size groups are shown in Table 5-3-1.

Table 5-3-2 indicates that the four most important merger motives for the smallest acquiring firms (X_1) were reducing administrative expense, improving management efficiency, combining complementary resources and improving finance management efficiency respectively. This indicates that small acquiring enterprises see the primary benefits of a proposed merger as being ensuring operational synergy and improving finance management efficiency.

The second subgroup of acquiring firms (i.e. small-medium sized enterprises, X_2) claim that their incentives are reducing administrative expense, combining complementary resources and improving general and financial management efficiency respectively. This result is similar to that of the small enterprises.

The most important merger motives for the third subgroup of acquiring firms (i.e. medium-sized enterprises, X_3) were reducing administrative expense, establishing economies of scale, combining complementary resources and improving finance management efficiency respectively. This indicates that operational synergy and improving finance efficiency were most important to Taiwanese medium-sized enterprises.

The fourth subgroup of acquiring firms (i.e. large enterprises, X_4) cited the importance of reducing administrative expense, combining complementary resources, establishing economies of scale, enhancing market competitiveness and increasing market power. This result suggests that large Taiwanese enterprises aim to achieve more than operational synergy; they also wish to enhance their market competitiveness and market power. This finding suggests that the Fair Trade Commission still needs to note or investigate whether the combined firm has engaged in any unfair or tactics or has abused its market standing.

In short, gain operational synergy emerged as a very important merger motive for enterprises of all sizes. Improving management efficiency (especially in finance) was important for small and medium-sized enterprises. Large enterprises were also motivated by a market power factor.

The acquisition of brand marks, patents or copyright technologies and the buying of assets below replacement cost were the least important merger motives for firms of all sizes. This result may be related to the high percentage of mergers occurring within the same business group (85.7%). Where the acquiring and acquired firms belong to the same group, the acquiring firm does not need to get brand marks, patents or copyright technologies from the acquired firm.

The motive of government encouragement or support was relatively less important for small and medium-sized enterprises but the differences were not statistically significant. This indicates that such companies do not consider that they can avail of sizeable government encouragement or support as a result of a merger and acquisition.

Article 38 of the Statute for Encouragement of Investment and Article 13 of the Statute for Upgrading Industries encourage small and medium-sized enterprises to go into merger or consolidation for the purpose of promoting reasonable operations and management. They state that the company shall be exempt from all income tax, stamp

tax and deed tax and can defer land-value increment tax payable as a result of such actions, and these benefits only accrue if a merger takes place. As such, the government incentive is neither a subsidy nor a tax reduction. The government take a neutral role, overseeing a policy which is appropriately geared to ensure that resources are not wastefully distributed.

Table 5-3-2 measures our predictions for each motive, with a T-test of the difference between the mean scores for each of the four subgroups. The motive of resolving financial difficulties were of greater relative importance to small and small-medium sized enterprises than to medium and large enterprises. The small acquiring enterprises, x_1, attached significantly more importance (at $\alpha = 0.05$) to the merger motive of resolving financial difficulties than did the medium and large acquiring enterprises (x_3 and x_4). The small-medium sized acquiring enterprises, x_2, also gave more importance (at $\alpha = 0.10$) to the merger motive of improving financial difficulties than that did the medium and large acquiring enterprises.

The small acquiring enterprises were significantly more importance (at $\alpha = 0.05$) to the merger motive of increasing corporate debt capacity or financing than did the large acquiring enterprises. It indicates that the motive of increasing corporate debt capacity or financing was more important for small enterprises than it was for large ones. This is consistent with the argument that small acquiring enterprises grapple with relatively more difficult financing problems than do large acquiring enterprises.

The Statute for Development of Medium and Small Business was enacted for the furtherance of a sound development basis for medium and small businesses, by helping them improve their operating environments, promote mutual co-operation, and strive for growth through their own efforts (Article 1 of the Statute for Development of Medium and Small Business). "For satisfying the capital requirements of medium and small business the government shall co-ordinate with financial institutions and credit bonding enterprises concerned to enhance their respective functions of providing financial facilities and guaranty[32] to medium and small businesses" (Article

13 of the Statute for Development of Medium and Small Business). "All banks throughout the Republic of China shall, within the scope of their respective business, increase the proportion of financing facilities to be provided to medium and small businesses" (Article 14 of the Statute for Development of Medium and Small Business). "The competent authority shall co-ordinate with various agencies concerned to make ample funds available for providing special loans to medium and small businesses, and cause, by instruction, sponsoring banks to provide special or emergency financing facilities or to extend loans to meet with the requirements of enterprises implementing business converting projects or for adaptation to the changing economic situation; and to elevate, when necessary, the ceiling of such financing facilities, loans and guaranty" (Article 15 of the Statute for Development of Medium and Small Business).

Although the Articles of the Statute for Development of Medium and Small Business are intended to help provide financial facilities, loans and guarantees to medium and small businesses, such businesses still encounter significant financial difficulties. This indicates that the regulations of the Statute are not completely successful in meeting their aims. Our findings relating to on-going financial difficulties and increasing corporate debt capacity are similar to those found in previous studies. Teng and Chen (1979)[33] found that medium and small businesses experience difficulty, in accessing finance. The weakness of the medium and small firm is due to the fragility of capital structure, the shortage of internally generated funds and the misuse of short-term and/or long-term loans (Liao, 1985).[34] With regard to the cost of capital, the medium and small enterprise finds it more difficult than its larger counterpart to obtain funding so the costs and risks are relatively higher (Liu, 1993).[35] The weakness of financial management in medium and small businesses stems from the highly leveraged capital structure and the difficulty of ensuring adequate financing (Li, Chen, and Chang, 1993).[36]

The motive of applying for a listing on the stock market is the least important merger motive for small acquiring enterprises. This incentive was relatively important for

medium and large acquiring enterprises. The medium and large acquiring enterprises attached significantly greater importance to the merger motive of applying for a listing on the stock market than did the small acquiring enterprises according to the T-test. This verifies the economists and managers' claim that many firms merge with others for the purpose of applying for a listing on the stock market.

Owing to the prosperity of the economy and increases in individual incomes, the stock market entered a bull phase in 1988. The government set up requirements for companies applying for a listing on the stock market.[37]

1. Number of years of corporate existence: The company must be in existence for over five full fiscal years after its incorporation.
2. Amount of capital stock: The number of paid-in capital in its final accounts for the two most recent fiscal years must exceed NT$ 200,000,000.
3. Profitability: The operating profits and before-tax net profits for the three most recent fiscal years must be positive; the company must not show a cumulative loss in the three most recent fiscal years; and the operating profits and pre-tax net profits for the five most recent years must represent 5% or more of the amount of paid-in capital in its final accounts.
4. Capital structure: The before-profit-distribution net worth for the most recent year must represent one-third or more of the total assets.
5. Dispersion of shareholdings: The number of holders of name-bearing stock certificates must exceed 2,000.

If a firm's capital stock does not reach the requirement of at least NT$ 200,000,000 to 600,000,000 (category one to three) the merger motive of applying for a listing on the stock market should not be important. Medium sized acquiring enterprises whose total assets range between NT$ 200 million and NT$ 1,000 million, just fit this requirement and this subgroup did indeed give a relatively high score to the importance of applying for a listing on the stock market. This result is consistent with our prediction.

Typically, the business public are confident that if a company achieves these approval requirements (as set by the Securities and Exchange Commission, Ministry of Finance), then the company's operating performance must also be very good. In these cases, when a company issues its shares on the stock market, the NT$ 10 (par value) per share quickly increases to NT$ 20 or 30 per share. The newly listed company typically earns abnormally high gains from the stock market. This is why many companies actively applied for a listing on the stock market during the period of fieldwork, and this motive is one that is particular to Taiwan's unique stock market environment.

Small acquiring enterprises attach more importance to the motive of improving management efficiency (especially in marketing) than do large acquiring enterprises according to the T-test. This result indicates that small acquiring enterprises desire to use a merger to improve their marketing management efficiency. The motive of improving production management efficiency is more important for medium sized acquiring enterprises than for large ones. The motive of improving R&D management efficiency is more important for small sized acquiring enterprises rather than for small-medium sized acquiring enterprises.

The detailed results of the T-test and Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) of the difference between the mean and median scores for each motive of the four subgroups are showed in Appendix 2. The results of the U-test were similar to the results of the T-test.

5.4 MOTIVES CLASSIFIED BY BUSINESS GROUP

We now discuss acquirers' merger and acquisition motives classified by business group. As shown in Table 5-4-1, if the acquiring and acquired firms belonged to the same business group, the most important motives for the acquiring firm were reducing administrative expense, combining complementary resources, establishing economies of scale and improving finance management efficiency. This indicates that operating

synergy emerges as a fairly important merger motive for Taiwanese enterprises. For the acquiring and acquired firms which are located in different business groups, the most important motives for the acquiring firm are increasing market power, achieving economies of scale, enhancing market competitiveness and controlling distribution channels. The results indicate that market factors, including market power, market competitiveness and marketing channels, are the main merger motives for the acquiring firm only when the acquiring and acquired firm do not belong to the same business group.

Where the acquiring and acquired firms belonged to the same business group, the least important motives for the acquiring firm were acquiring brand marks, patents or copyright technologies, controlling material resources, diversifying risk, gaining rapid entry into new markets or industries and buying below replacement cost. The results indicate that establishing economies of vertical integration, buying below replacement cost and diversifying risk are not important merger motives for Taiwanese enterprises between 1990 and 1995. This is reasonable, since the acquiring firm does not need to acquire the brand marks, patents or copyrights, and are unlikely to be trying to enter new markets or industries or to diversify risk if the acquired firm also belongs to the same business group. Where the acquiring and acquired firms come from separate business groups, the least important motives for the acquiring firm are soaking up surplus funds, applying for a listing on the stock market, being mindful of tax considerations and buying below replacement cost. This indicates that free cash flow and stock market and tax considerations are not important merger motives.

Table 5-4-2 shows a T-test of the difference between the mean scores for each motive within or outwith the same business groups. Where both the acquirer and the target belong to the same business group, then the acquiring firm is more significantly motivated by the issues of reducing administrative expense, combining complementary resources, capitalising on tax considerations, exploiting surplus funds and improving management efficiencies (especially in marketing, production, finance, personnel and purchasing). The results indicate that when firms belong to the same

business group, they may have access to more and better information to accurately assess the merger's advantages. If they find the transaction is beneficial for themselves and/or their target, they go ahead with the deal. When the acquiring and acquired firms do not belong to the same business group, the acquiring firm is more significantly concerned with using the acquisition opportunity to increase its market power. The result indicates that firms that do not belong to the same business group, are chiefly concerned with addressing the issue of their market power. So the Fair Trade Commission still needs to observe the combination to judge whether it affects the interests of consumers and ensures fair competition.

The U-test of the difference between the median scores for each motive within or outwith the same business groups is displayed in Appendix 3. The results of the U-test were similar to the results of the T-test.

5.5 MOTIVES CLASSIFIED BY THE TYPE OF TRANSACTION

Different types of transaction between acquiring and acquired firms reveal different merger motives. As seen in Table 5-5-1, on average, acquiring firms choosing a horizontal transaction were more concerned with economies of scale, control of distribution channels, reducing administrative expense, increased market power and improved personnel management efficiency than were acquirers pursuing other types of transaction. The results indicate that operating synergy, market power and personnel management improvement are major motives in horizontal transactions. Acquiring firms which opted for vertical integration were more concerned with acquiring know-how or research and development, enhancing market competitiveness, gaining rapid entry into new markets or industries, controlling material resources, combining complementary resources, increasing corporate debt capacity or financing, applying for a listing on the stock market, addressing tax considerations, availing of government encouragement or support, buying below replacement cost and improving management efficiency (especially in marketing, production, purchasing and R&D). This indicates that combining complementary resources (including technologies,

markets, materials, finance, tax, equipment, and managerial skills) and applying for a listing on the stock market are important merger motives for firms engaging in a vertical transaction. Acquiring firms which pursued a congeneric transaction were more motivated by acquiring brand marks, patents or copyright technologies and improving financial management efficiency. Acquiring firms opting for a conglomerate transaction were more preoccupied with resolving financial difficulties, diversifying risk, deploying surplus funds and gaining potential real estate than were acquirers pursuing other types of transaction.

Differences in merger motives between acquiring firms involved in different types of transaction are tested in Table 5-5-2. The results indicate that the following motives are more important in vertical than in horizontal transactions: applying for a listing on the stock market, addressing tax considerations, availing of government encouragement or support. This indicates that, through a vertical transaction, companies can increase their capital size and apply for a listing on the stock market, and can enjoy tax exemptions[38], deductions[39] or deferments[40]. As we saw in Section 5.4, where the acquiring and acquired firms belong to the same business group, then the acquiring firm is more strongly motivated by tax considerations (at $\alpha = 0.001$) and a stock market listing (at $\alpha = 0.057$) (see Table 5-4-2). With regard to tax considerations (different corporate income tax rates and progressive tax rates), the business group typically sets up discrete firms (e.g. a manufacturing unit, a marketing unit, etc.) to reduce the group's tax burden. When these tax advantages do not apply (e.g. operating income before income tax above NT$ 100,000 pay 25% corporate income tax) but the advantage of applying for a listing on the stock market remains in play, different firms in the same business group typically apply for special governmental approval for the merger.

The merger motives of increasing corporate debt capacity or financing and diversifying risk were more important in horizontal than in congeneric transactions. The following motives were more important in horizontal than in conglomerate transactions: economies of scale, control of distribution channels, reducing

administrative expense, enhancement of market competitiveness, increased market power and improved management efficiency (especially in marketing, personnel, purchasing and R&D). These results indicate that the merger motives behind horizontal transactions in Taiwanese enterprises are to achieve operating and finance synergy, increased market power and improved management efficiency. These results are similar to those presented in previous empirical studies in Taiwan.

The merger motives of achieving economies of scale and increasing corporate debt capacity or financing were more important in vertical than in congeneric transactions. Comparing vertical and conglomerate transactions, firms pursuing a vertical transaction were more concerned to control distribution channels, enhance market competitiveness, control material resources, increase corporate debt capacity or financing, increase market power, apply for a listing on the stock market, capitalise on tax considerations and improve marketing, purchasing and R&D management efficiency. This indicates that firms opting for a vertical transaction try to use the merger to control distribution channels and material resources so as to enhance their market competitiveness, and also to apply for a listing on the stock market, to take advantage of tax benefits and to improve management efficiency.

The following motives were more important in congeneric than in conglomerate transactions: administrative expense reduction, brand mark, patent or copyright technology acquisition, enhancement of market competitiveness, increased market power and improved purchasing management efficiency. This indicates that, through a congeneric transaction, firms chiefly aim to reduce administrative expense and acquire brand marks, patents or copyright technologies to enhance market competitiveness and increase market power.

The merger motive of risk diversification was more important in conglomerate rather in congeneric transactions. This indicates that risk diversification is of overriding importance to firms engaged in a conglomerate transaction.

The U-test of the differences in merger motives between acquiring firms involved in different types of transaction is showed in Appendix 4. The results of the U-test were similar to the results of the T-test.

5.6 THE CORRELATION BETWEEN THE IMPORTANCE OF MERGER MOTIVES AND PRE-TRANSACTION SIZE OF ACQUIRING ENTERPRISES

The Pearson product-moment correlation between the importance of different reasons for mergers and acquisitions and the total pre-transaction assets of acquiring enterprises is presented in Table 5-6-1. All the correlation coefficients indicated that there was a low positive or negative linear relationship in the sample between the merger motives and the total assets of acquiring enterprises before each transaction.

Table 5-6-1 also shows that we can reject the null hypothesis $\rho = 0$, at the $\alpha = .05$ level, for certain motives. These are: resolving financial difficulties, increasing corporate debt capacity or financing, applying for a listing on the stock market, and improving management efficiency (especially in marketing). These results indicate that when the total pre-transaction assets of acquiring enterprises are larger, the merger motive of applying for a listing on the stock market assumes greater importance for acquiring enterprises. It supports the generally held economic argument that large firms merge with others so as to garner sufficient capital stock (i.e. at least NT$ 200,000,000) to enable the combined firm to apply for a listing on the stock market.

When the total pre-transaction assets of acquiring enterprises are small, the motives of resolving financial difficulties, increasing corporate debt capacity or financing and improving management efficiency (especially in marketing) assumes greater importance for acquiring enterprises. This indicates that establishing operating and financial synergy is more important for small acquiring enterprises than it is for large acquirers.

The results of the two-tailed test of Spearman's rank correlation between the importance of different reasons for mergers and acquisitions and the total assets of acquiring enterprises, at the $\alpha = .05$ level, are similar to the results of the Pearson linear correlation (as shown in Appendix 5).

5.7 THE CORRELATION BETWEEN THE IMPORTANCE OF THE MOTIVES FOR MERGERS AND ACQUISITIONS AND THE CHANGE IN ASSETS FOLLOWING THE TRANSACTION

The Pearson product-moment correlation between the importance of the reasons for mergers and acquisitions and the change in assets thereafter is shown in Table 5-7-1. The correlation coefficients ranged from -.2362 to .1059, which indicates that there was a low positive or negative linear relationship between the importance of merger motives and the change in assets following the transaction in the sample.

However, Table 5-7-1 shows that we can reject the null hypothesis $\rho = 0$, at the $\alpha = .05$ level, only in the case of achieving economies of scale, reducing administrative expense and applying for a listing on the stock market. This means that the greater the increase in assets after the merger or acquisition, the more important are these particular merger motives. This result indicates that a large increase in the acquirer's assets after a merger or acquisition verifies the hypothesis that many small companies merge so as to generate sufficient capital stock (i.e. at least NT$ 200,000,000) to entitle them to apply for a listing on the stock market. It also indicates that there is an important correlation between the merger motives of economies of scale and administrative expense reduction and the increase in assets after the merger or acquisition. This shows that a large increase in the acquirer's assets is heavily implicated in how the company has used the merger to achieve operating synergy.

The Spearman's rank correlation between the ranking of the importance of different reasons for mergers and acquisitions and the change in the pre-transaction assets of

acquiring enterprises is presented in Appendix 6. The results indicate a similarity with the Pearson linear correlation.

5.8 FACTOR ANALYSIS OF ALL VARIABLES IN THE MOTIVES FOR MERGERS AND ACQUISITIONS

In this study, we conduct factor analysis to identify the structure underpinning the motives for mergers and acquisitions. This analysis reduces the data so that fundamental motivational constructs can be teased out. With factor analysis, we can identify any separate motivational factor and then determine the degree to which each variable is explained by that factor. If any factors can be so extracted, it is possible to reduce the data to a hard core, from which a summary can be drawn.

The unrotated principal components analysis factor loadings matrix of the motives for mergers and acquisitions is shown in Table 5-8-1. Various statistics need to be noted. First, we observe that there are four factors with an eigenvalue of 1.000 or greater--the conventional criterion for accepting a factor for extraction. The lowest proportion of total variance which is explained by these four factors is 4.3%, which by conventional standards is quite low (Hair et al., 1995).[41] Second, the communalities are all more than 0.486. A communality represents the amount of variance of each variable that is accounted for by the factors which have been extracted. Third, the total percentage of variance is 63.4%. This result indicates that the four extracted factors accounted for 63.4 per cent of the total variance for all the groups.

In order to achieve a clearer factor structure, we choose an orthogonal rotation method to rotate the initial factor solution. Our principal goal is to simplify the columns of the factor matrix (i.e., to reduce the number of high factor loadings to as few as possible) for ease of interpretation, and for this we use the VARIMAX rotation method.

The VARIMAX rotated principal components analysis factor loadings matrix for the motives for mergers and acquisitions is presented in Table 5-8-2. Factor 1 had eight significant loadings and the first six variables related to improving management

efficiency. These management efficiency improvements included marketing, personnel, finance, purchasing, production and research and development. For Factor 1, all the significant variables had positive signs. This indicates that improving management efficiency, is a generic factor for enterprises proposing to enter into merger. Factor 2 had 10 significant loadings and the variables mainly related to market control and new product introduction components. These chiefly embrace enhancing market competitiveness, control of distribution channels, acquiring know-how or research and development, increased market power, economies of scale, acquiring brand marks, patents or copyright technologies, gaining rapid entry into new markets or industries, improving purchasing and R & D management efficiency and control of material resources. All the variables had positive signs. Factor 3 had 10 significant loadings but the largest eight variables mainly related to finance components which included resolving financial difficulties, increasing corporate debt capacity or financing, risk diversification, exploiting surplus funds, tax considerations and government encouragement or support, etc. All the variables had positive signs indicating they are all positively correlated with each other. Factor 4 had five significant loadings but the largest two variables related to applying for a listing on the stock market and gaining potential real estate or other related value. Both variables were of the same sign, suggesting that the respondents held similar perceptions.

According to the above factor analysis, the 25 variables can be summarised into four main dimensions which relate to the motives for mergers and acquisitions in Taiwanese enterprises between 1990 and 1995. These were improving management efficiency, market control and new product introduction, finance and stock market considerations. These factors were not consistent with Fang's (1990), Lin's (1990) and Yang's (1996) results.

5.9 CONCLUSION

The most important motives for mergers and acquisitions were reducing administrative expense, combining complementary resources, achieving economies of

scale and improving finance management efficiency. The least important reasons were acquiring brand marks, patents or copyright technologies, controlling material resources, buying below replacement cost and diversifying risk. The hypotheses that a stock market listing or tax considerations are very important merger motives in Taiwan in the 1990s were true for a few companies but could not be verified for the majority of companies.

If we divide the acquiring firms into four subgroups based on their total assets size, operating synergy emerged as a very important merger motive for firms of all sizes. Large enterprises were also motivated by the market factor. The motive of increasing corporate debt capacity or financing was more important for small acquiring enterprises than for large ones. This indicates that small companies find it more difficult to increase their debt capacity or to raise fund from financial institutions than do large firms. The business credibility of companies that can meet the government's approval criteria is high; the general assumption is that such firms are good performancers. When these firms issue their shares on the stock market, their share value increases quickly.

Where the acquiring and acquired firms belong to the same business group, the acquirer is most significantly driven by the need to reduce administrative expense, combine complementary resources, avail of tax breaks, deploy surplus funds and improve management efficiencies (especially in marketing, production, finance, personnel and purchasing), compared to those located in different business groups. Where the acquiring and acquired firms come from separate business groups, the acquiring firm is significantly more concerned with increasing its market power than is the case for those belonging to the same group.

The merger motives behind horizontal transactions are mainly to establish operating and finance synergy, increase market power and improve management efficiency. Firms transacting in a vertical direction are concerned with establishing operating and finance synergy, applying for a listing on the stock market, availing of tax advantages

and improving management efficiency. Companies choosing congeneric transactions aim to augment their operating synergy and market power and to improve their purchasing management efficiency. Risk diversification is a motive of overriding importance in conglomerate transactions between 1990 and 1995.

When the total pre-transaction assets of acquiring enterprises are large, the merger motives of addressing finance issues, applying for a listing on the stock market and improving management efficiency are more important for acquiring enterprises. This result verifies the hypothesis of many Taiwanese economists and managers and resolves the puzzle of whether the merger motive of applying for a listing on the stock market exists for large acquiring firms. When the total pre-transaction assets of acquiring enterprises are small, the merger motives of resolving financial difficulties, increasing corporate debt capacity or financing and improving management efficiency become more important for acquiring enterprises. This indicates that small acquirers are more driven to focus on improving their finance and operating practices. The greater the increase in assets after a merger or acquisition the more important are the merger motives of achieving economies of scale, reducing administrative expense and applying for a listing on the stock market. A large increase in acquirers' assets after a merger or acquisition verifies the hypothesis that applying for a listing on the stock market is important for certain Taiwanese enterprises between 1990 to 1995.

The factor analysis indicated that the four extracted factors accounted for 63.4 per cent of the total variance for all merger motives. These were improvements in management efficiency, market control and new product introduction, finance and stock market considerations.

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[31] Sections 1 and 3 of Article 2 of the Recognition Standard for Medium & Small Business (Publicly announced in accordance with an official order #MOEC(80) B059364, dated November 25, 1992 by the Ministry of Economic Affairs).
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[37] Articles 3,4,5 and 6 of the Taiwan Stock Exchange Corporation Rules Governing Examination of the Listing of Securities.
[38] Profit-seeking enterprises that are specifically approved for merger or consolidation by the Ministry of Economic Affairs to become a productive enterprise for the purpose of promoting reasonable operation and management shall be handled in accordance with the following relevant provisions (Article 38 of the Statute for Encouragement of Investment):
Profit-seeking enterprises shall be exempt from all income tax, stamp tax and deed tax payable as a result for such mergers or consolidations (Paragraph 1 of Article 38 of Statute for Encouragement of Investment).
If the enterprise existing as the result of the merger or consolidation is a productive enterprise conforming to the categories and criteria of encouragement referred to in Article 3, it may continue to enjoy the various incentives set forth in Article 6 (exemption from income tax for a period of five or four consecutive years and depreciation of the accelerated service life) as may have been originally enjoyed by the respective enterprises prior to the merger and consolidation until the expiration thereof (Article 38 of Statute for Encouragement of Investment).
[39] Existing productive enterprises, if conforming to the production scale and criteria prescribed by the Government after a merger or consolidation, shall be entitled to a fifteen percent (15%) deduction in the profit-seeking enterprise income tax for two years after a merger or consolidation (Article 40 of the Statute for Encouragement of Investment).
[40] Where the land previously used by these enterprises directly is transferred along with the merger or consolidation, registration shall be effected for the transfer of the ownership of the land immediately after the current value of the land has been duly assessed according to law; the land-value increment tax payable may be entered to credit, and paid by the enterprise existing as the result of the merger or consolidation at the time the land is further transferred. In the case of bankruptcy or dissolution of the existing enterprise, the land-value increment tax previously entered to its credit shall be paid in priority over all other debts (Paragraph 2 of Article 38 of the Statute for Encouragement of Investment).
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CHAPTER 6

THE MAIN METHOD OF PAYMENT FOR MERGERS AND ACQUISITIONS

6.1 INTRODUCTION

In the negotiation of mergers and acquisitions, one of the most important considerations is the main method of payment. Previous empirical research focuses mainly on a comparison of stockholders' returns between acquiring and acquired firms or on the method of payment (e.g. cash offer or stock exchange) which generally results in larger excess returns. Based on the main methods of payment, this study aims to extend the previous analysis to some new aspects. Is there any relationship between the pre-transaction sizes of acquiring enterprises and the different methods of payment? Differences in the change in assets of the acquiring enterprises after completion of the transaction for the various payment methods are also of interest. Is there an association between the main method of payment and the estimated value of the acquired firm?

This chapter is arranged as follows. A number of alternative studies of methods of payment for mergers and acquisitions are described in the upcoming section. The chapter then reviews empirical studies of the effects of payment methods on shareholders' returns in corporate take-overs. In the fourth section, the hypotheses and the independent variables relating to acquiring firms are presented. An analysis of the findings of the main method of payment in Taiwanese mergers and acquisitions is offered in the fifth section. Differences in the average pre-transaction assets of the independent acquiring enterprises and different payment methods are presented in the sixth section. The seventh section describes the change in assets in terms of the main method of payment of acquiring enterprises. The relationship between the main method

of payment of the acquiring firm and the method used to estimate the value of the acquired enterprise is considered in the eighth section. The final section offers a conclusion.

6.2 THEORIES OF METHODS OF PAYMENT FOR MERGERS AND ACQUISITIONS

The following section describes some of the theoretical literature used to explain why the various methods of payment employed to finance mergers and acquisitions might have different valuation effects on the bidding firms' returns.

6.2.1 TAX EFFECTS

Taxation is one of the most important factors affecting the price offered by a bidder (Wansley, Lane, and Yang, 1983).[1] The tax liabilities of the acquired firm's shareholders also influence the choice of exchange method (Franks, Harris, and Mayer, 1988).[2] The main tax effects are tax deferral, stepped-up assets, substitution of capital gains for ordinary income and gains from leverage.

1. TAX DEFERRAL

Whether shareholders of the acquired firm should pay taxes on the transaction or not depends on whether cash or stock is received in exchange for their stock. When the payment method is a cash offer, the transaction is taxable and the acquired firm's shareholders are liable for income tax in the year of the transaction.[3] This decreases their returns. If, on the other hand, share-for-share exchange is used, an individual's income tax can be deferred until the new securities are sold.[4] Some researchers (Wansley, Lane, and Yang, 1983; Huang and Walkling, 1987[5]; Franks, Harris, and Mayer, 1988 and Peterson and Peterson, 1991[6]) claim that the premiums or any abnormal returns on cash offers must be higher than the share-for-share exchange if this tax disadvantage is to be offset.

2. STEPPED-UP ASSETS

Under Taiwan's tax code, if the acquiring firm pays by means of a cash offer, it can increase the tax basis of the acquired firm's assets to its fair market value and levy depreciation charges on this new basis. This step-up generates higher tax-deductible depreciation allowances which are not available for all-stock bids. The depreciation of these stepped-up assets can reduce tax and generate greater cash flows.

3. SUBSTITUTION OF CAPITAL GAINS FOR ORDINARY INCOME

If a firm has surplus cash, it can distribute that surplus to its shareholders by increasing its dividend payment or by repurchasing stock. When the firm distributes the surplus cash to its shareholders, this increases the shareholder's individual income tax liability.[7]

Company Law does not permit a company to repurchase its own shares in Taiwan. According to Article 167 of Company Law[8] "except in the manner as provided in Articles 158[9], 186[10] and 317[11] hereof, a company shall neither redeem nor purchase its own shares nor accept any of them as collateral under any pledge agreement; provided, however, that where any of its shareholders liquidates or is adjudicated bankrupt, the company may redeem the shares held by such a shareholder at the current market price to satisfy any and all of his obligations due and payable to the company before his liquidation or adjudication of bankruptcy. Any shares redeemed or purchased by the company in the manner provided in the proviso of the preceding paragraph or in Article 186 hereof shall be sold at the then current market price within six months of the redemption or purchase. Such shares shall be deemed un-issued if not sold within the prescribed time limit, in which event the company shall apply for amendment registration reflecting the cancellation of the issue of such shares". At present securities transaction tax is no longer levied (since January 1, 1990) in Taiwan[12] so firms can use

their surplus cash to take-over another firm and substitute capital gains tax for ordinary income tax.

4. THE GAINS FROM LEVERAGE

If a firm does not have enough of its own cash to acquire another company, it may need to borrow from a bank. The interest payments on this debt can be deducted from the enterprise's income tax.[13] If the interest rate is relatively low, the acquiring firm may increase its gearing level to complete the transaction. At the same time the higher gearing level brings greater risk. The Taiwanese government allowed a private bank to open in 1992. Before then, government-controlled banks were very conservative and did not offer many financial incentives to firms. Firms cannot issue 'junk bonds' to raise the funds to merge with another firm. This means that management buy-outs and leveraged buy-outs are not popular in Taiwan. Vermaelen (1981)[14] argues that the leverage hypothesis may play a role, but it is not the main explanation for the observed abnormal returns. He argues that the more plausible explanation is the signalling or information effect. If leverage is regarded as a signal, then it is impossible to separate the leverage signalling effect from the leverage tax effect.

6.2.2 INFORMATION EFFECTS AND THE SIGNALLING HYPOTHESIS

If all parties to a merger or take-over are not well informed about the prospects, the choice of payment method may be shaped by considerations other than taxation. Myers and Majluf (1984)[15] present an asymmetric information model and hypothesise that managers often have better information than do outsiders, and that both parties understand this. Where there is unequal access to the relevant information about future prospects, the choice of payment method itself conveys some information about the value of the acquiring firm's stock. When stock is used to pay for an acquisition, it implies that the acquiring firm's managers consider the stock to be overvalued (Travlos, 1987).[16] Hence, the issuance of stock conveys negative information about the bidder's returns.

The signalling hypothesis suggests that the use of cash financing is a positive signal and that the bidder's cash flow is substantial. A cash offer may also signal that the acquiring firm has information about the future profitable opportunities of the acquisition. Acquiring firms' management use cash when they believe that the stock of their firm is undervalued relative to its perceived value (Hansen, 1987[17]; and Brown and Ryngaert, 1989[18]).

6.2.3 REGULATION EFFECTS

The method of payment influences the bidding strategy if it affects the anticipated net present value of an acquisition. Payment methods can affect net present values through interrelations with either acquisition costs (i.e., size of premium) or the probability of success. Wansley, Lane and Yang (1983) note that in stock offers an acquiring firm must register with, and obtain approval from, the Securities and Exchange Commission before acquired shareholders begin to defend their shares. This process may take several months. In contrast, an acquiring firm paying cash may buy the (potential) acquired firm's shares within several weeks. Thus, cash offers facilitate speedier acquisition transactions. In Taiwan, the Securities and Exchange Law regulates that "Approval from or effective registration with the Competent Authority (Securities and Exchange Commission, SEC) is required for a company to publicly offer or issue securities".[19] The term "security" or "securities" as used includes any corporate stocks and/or corporate bonds publicly offered or issued (Article 6 of Securities and Exchange Law). If the combined enterprise captures a one third (1/3) of market share, or if an enterprise participating in the combination holds a market share of one fourth (1/4), it must apply for approval from the Fair Trade Commission (FTC) and the commission must make its approval or disapproval decision within two months of receipt of an application.[20]

A speedy transaction can be crucial to the success of a take-over, especially in the case of a hostile bid. The lengthier processing time for a stock offer potentially gives

the acquired firm's management more opportunity to mount a defence. The acquired firm's favoured bidders (their white knight) could be induced to join the competition, and the management could selectively reveal inside information about the firm's value to the white knight. This information could result in an upward revision of cash flow estimates or a reduction in the uncertainty such bidders might feel. As a result the favoured bidders could offer a higher premium. Consequently, a hostile stock offer would have a lower probability of succeeding than if the hostile offer was made in cash.

6.2.4 ACCOUNTING TREATMENT

The major accounting treatments for acquisitions are the pooling and purchase methods. In the pooling method, the book value of the combined firms' assets, liabilities and equities are simply added together. Under the purchase method, certain excesses of purchase price over book value must be reported as goodwill and then amortised. The amortisation reduces reported earnings but is not deductible for corporate tax purposes. As a result, a merger consummated by cash would necessarily be accounted for using the purchase method. Typically, an exchange of voting common stock would be accounted for through a pooling of interest.

The effect of these accounting differences on the valuation of the postmerger firm is a subject of controversy (Hong, Kaplan, and Mandelker, 1978).[21] While purchase accounting may depress earnings per share, it can actually lead to higher cash flow as a result of the larger tax-deductible depreciation shields which can often be created in a purchase when it is a taxable merger. The effect of the accounting choice might be particularly important for managers whose compensation is based on some calculation of an earnings figure.

6.3 EMPIRICAL STUDIES OF EFFECTS OF METHODS OF PAYMENT

Whether the method of payment used in mergers or acquisitions affects the returns to the stockholders of both acquiring and acquired firms has been subject to a number of empirical studies.

Wansley, Lane, and Yang (1983)

Wansley, Lane, and Yang found higher abnormal returns to acquired firms for cash offers than for stock offers. Their study examined 203 acquired firms over the period 1970-1978 in the US. They found that acquired firms' cumulative average residuals (CAR) for the 41 days through to the announcement date when the method of payment was cash, was 33.54 per cent, as compared with 17.47 per cent when securities were used. When the method of payment represented a combination of cash and securities, the CAR was 11.77 per cent. Cash offers yield greater tax effects' premiums than do securities exchanges. The authors also observed that when stock is used, the bidding firm must go through the Securities and Exchange Commission registration process which may take several months. Cash offers can be completed much more quickly. The longer it takes to finish a merger, the more quickly the acquired firm's management can launch a defence against the merger. They can, for example, stimulate additional bids and they may encourage such bids by selectively disclosing important information to selected potential bidders. These findings are consistent with those found for regulation effects.

Travlos (1987)

Travlos studied whether the difference between acquiring firms' returns is significant depending on their differing choice of payment methods for take-over transactions. His sample contains 167 successful bidding firms during the period 1972 to 1981 in the US. If the bidding firms use common stock as a means of financing, the acquisition proposals at the announcement have a negative effect on common stock prices. The cumulative abnormal return on the two-day (t=-1 to t=0) announcement period is -1.47%, which is significant (at $\alpha = 0.01$). On the contrary, when they pay cash for the shares of common stock of the target firms, the bidders experience normal rates of return. The cumulative abnormal return is 0.24%, which is not

significant. The results are consistent with the signalling hypothesis which implies that take-over financing using common stock exchange conveys negative information which implies that the bidding firm is overvalued.

Huang and Walkling (1987)

To reduce selection and classification bias, Huang and Walkling use acquisition announcements rather than lists of completed acquisitions as their sample. Their sample includes 204 target firms over the period 1977 to 1982 in the US. For the two-day (t = -1 to t = 0) announcement period, the target firm shareholders earn an average cumulative abnormal return of 29.3% for cash offers, whereas those for stock offers gain 14.4%. The average cumulative abnormal return for a mixture of payment offers (i.e. cash, debt and stock) is 23.3%, which positions this cluster between the values for stock and cash offers. The results, however, are consistent with a tax explanation; shareholders request higher premiums because they need to pay taxes immediately on their gains.

Franks, Harris, and Mayer (1988)

Franks, Harris, and Mayer compare the effects of means of payment in take-overs in the United Kingdom and in the United States. Spanning the period 1955-1985, the data include 1,900 acquisitions in the United Kingdom and 1,555 acquired firms and 850 bidders in the United States. This research shows that the bid premium around the announcement date (month 0 and months -4 to +1) for acquired firms were significantly higher in all-cash offers than in all-equity offers in both countries. The results for the United Kingdom indicate that acquired firms in all-cash offers obtained a 30.2 per cent bid premium (month 0) which was significantly higher than the all-equity offers with a 15.1 per cent premium. The differences in the United States are more impressive, the 11.1 per cent premium in all-equity offers (month 0) being less than half the all-cash value of 25.4 per cent. This conclusion is consistent with the tax effects or signalling hypothesis. A higher bid premium is essential in cash offers to offset the capital gains tax liability and there are negative signals associated with equity offers. Over the six-month period (months -4 to +1), the

results are about the same in both countries. For acquiring firms during month 0, all cash offers earned small positive abnormal returns that were statistically significant in the United States, but not significant in the United Kingdom. All equity offers brought negative returns that were significant in the United States, but not in the United Kingdom. Over the six-month period, cash offers yielded small positive abnormal returns both in the United Kingdom and the United States and had some statistical significance. All equity offers had no statistical significance.

Peterson and Peterson (1991)

This research explores the characteristics of the means of exchange in explaining the returns for parties in mergers and acquisitions in the US. The sample includes 272 merger completed companies between 1980 and 1986. The empirical results indicate that cash provides the greatest returns for acquired firm shareholders and stock provides the lowest returns. These results are consistent with the tax effects argument. Acquiring firms using stock as the medium of exchange during the announcement period earn negative abnormal returns. This negative return is consistent with the signalling hypothesis. A test of differences in abnormal returns across the medium groups, using an F-statistic, indicates that it is significant (at α = 0.05) for both acquiring and acquired firms. It shows that there is an association between the methods of payment and abnormal returns.

Trifts (1991)[22]

Trifts tests the leverage effect while controlling for the method of payment and finds a strong leverage impact on the abnormal returns to acquiring firms' shareholders in addition to a method of payment effect. His sample consists of 122 completed mergers and tender offers over the period 1970 to 1985 in the US. His study shows cumulative abnormal returns (CARs) over the announcement period (days -1 and 0, -5 to +5, and -10 to +10), and finds that cash offers are statistically superior to stock offers. Over this period, cash transactions reveal a positive but insignificant CAR, while stock transactions render a statistically significant negative return. The findings indicate that cash payments outperform stock exchanges around the transaction

announcement period and thus, Trifts comes to similar conclusions to Travlos (1987) and Wansley et al. (1987)[23]. Over the two and 11 day announcement period (days -1 and 0 and days -5 to +5), acquiring firms using increased leverage earn significantly higher abnormal returns than those with decreased leverage. There is also evidence here of a leverage effect. Trifts, using regression analysis, finds that while the method of payment remains important, changes in leverage have significant additional explanatory power. This result indicates that both the method of payment and changes in leverage are important determinants of abnormal returns to acquiring firms' shareholders.

Sung (1993)[24]

This study consists of 222 successful mergers and take-overs from 1974 to 1987 in the US. Over the two-day (days -1 to 0) announcement period, cash offers yield normal returns and stock exchange offers yield significantly negative abnormal returns to bidders. Between 1981-87, a positive announcement effect occurred when the financing method was cash. For stock exchange offers, the negative effect of issuing equity dominated any positive net present value. However, between 1974-80, the form of financing did not produce any significant information effect. The evidence indicates that there was an information effect on bidder returns in mergers and tender offers in the 1980s.

Lo (1991)[25]

We now turn to an empirical study for Taiwan. Lo examines the role of the method of payment in the explanation of returns to acquiring firms in mergers and acquisitions. Her sample contains 22 successful mergers or take-overs in Taiwan over the period 1989 to 1990. For the 11 day (t = -5 to t = 5) announcement period, acquiring firm stockholders earn a cumulative abnormal return of -2.0 per cent for cash offers, which is statistically insignificant, whereas for stock offers shareholders earn 20.2 percent, which is statistically significant different from zero. Her research indicates that acquiring firm stockholders earn larger excess returns following stock offers than they do for cash offers. Her findings contradict those of the United

Kingdom and United States' studies and are also inconsistent with the tax effects argument.

In brief, empirical research for the UK and US indicates that acquired firm stockholders earn positive abnormal returns following corporate take-overs, and acquiring firm stockholders earn normal or negative abnormal returns (Jensen and Ruback, 1983[26]; Jarrell, Brickley, and Netter, 1988[27]; and Trifts, 1991;). The method of payment, however, is an important determinant of shareholder wealth; acquired and/or acquiring firm stockholders generally gain larger excess returns following cash rather than stock offers (Wansley, Lane, and Yang, 1983; Huang and Walkling, 1987; Travlos, 1987; Wansley, Lane, and Yang, 1987; and Franks, Harris, and Mayer, 1988; Trifts, 1991; and Sung, 1993). The only known study for Taiwan comes to the reverse conclusion.

6.4 HYPOTHESES

In this study we are interested in why firms use a particular main method of payment when taking over another. However there were only 17 transactions involving listed companies in Taiwan over the period 1990-1995. This is too small a sample to adopt the conventional methodology of analysing their share prices and generalising about the effects of the main method of payment on mergers and acquisitions. Therefore to further understand why acquiring enterprises opt for their preferred method of payment, we compared pre-transaction size and post-transaction growth (increase in total assets) between the main methods of payment of acquiring firms. We also looked at the relationship between the main method of payment and the method of valuation of the acquired enterprises. The hypotheses are described as follows.

6.4.1 SIZE

When the acquiring firm's size (total assets) is small, for a given expenditure (i.e. size of acquired firm), the management and shareholders may not care to use shares

exchange as the main payment method because a large increase in the number of shares might dilute the value of the original shares either in terms of their monetary value or the level of control they offer the shareholder. In contrast, the dispersal of shares in large firms may already be substantial such that the acquiring firm's managers are not afraid to issue a given volume of new shares to the acquired firm; the dilution of shares is already given. From the acquired firm's shareholders' point of view, if the bidding firm's assets are small, this suggests that it is not listed on the stock market. Were the combined company's operations to be poor, it would then be very difficult to sell the shares. Therefore, the acquired firm's shareholders may prefer a cash offer to a stock exchange as a payment method. In the mean time, the absence of any credit-rating institutions in Taiwan means that small acquiring companies find it difficult to issue corporate bonds, convertible bonds or subscription warrants as a main method of payment and so this payment route is only rarely taken. So it is safe to assume that the greater the assets size of the acquiring firm, the more likely it is that acquiring shareholders will opt to pay by common stock.

6.4.2 GROWTH

The average growth (increase in total assets) of acquiring firms using common stock as the main method of payment is greater than that of acquiring firms using alternative main methods of payment. This hypothesis is based on the premise that transacting a merger or take-over costs a great deal. If a company desires to merge with or take-over another company, it may use its retained earnings or it may borrow the funds from the bank(s) to pay for the transaction. But the amount of retained earnings is limited. Borrowing full and sufficient sums from the bank is also difficult, especially as the big banks are government-controlled (national, provincial or city banks) and bankers are habitually very conservative. These limits on the available cash will affect whether an acquiring firm can afford to procure another large company. Under these constraints, its growth may only be slight after the transaction. On the other hand, if an acquiring firm uses common stock as the main method of payment, it may more easily get large

amounts of funds and enter into a merger with another relatively large company, and emerge with a significant increase in assets after the transaction.

6.4.3 VALUATION METHODS

It is very apparent that different valuation methods result in different values being placed on a firm. The book value estimation method using historical cost data may underestimate the target company's value so the shareholders of the acquired firms are not likely to accept the cash offer. The replacement cost estimation method uses the cost of replacing an asset, either in its present form or as the cost of obtaining equivalent services and the cash flow approach estimates the amount of cash being received and expended by a business. When the asset can be replaced and/or the money can be ensured exactly, a cash offer is more likely to be accepted by the shareholders of the target. The stock market price indicates the collective opinion of investors as to a firm's cash flow potential and to its corresponding risk but the share price can change very quickly and it is only suitable for listed companies. The choice of valuation method will influence the shareholders of the acquired firms to accept the cash offer or share-for-share exchange. We hypothesise that the estimation method used to value the transacted firm and the method of payment of the acquiring enterprise are associated.

6.5 THE ACQUIRING ENTERPRISE'S MAIN METHOD OF PAYMENT FOR MERGERS AND ACQUISITIONS

The acquiring enterprise's main method of payment for mergers and acquisitions is shown in Table 6-5-1. The most common method was 'common stock'. There were 147 cases, i.e. 57.2% of the sample. 'Cash (reserves)' and 'cash (bank borrowing)' had 50 and 34 cases respectively (19.45% and 13.23% of the sample respectively). There were 13 cases (5.06% of the sample) where the main form of payment was by 'subscription warrants'. Very few enterprises used 'corporate bonds' and 'convertible bonds' as payment for their acquired enterprises; only two and four of these cases respectively (0.78% and 1.56% of the sample respectively).

When a company decides to transact with another, the main method of payment is one of the key issues upon which both parties must reach agreement. If a company desires to merge with or take-over another company, it may use its retained earnings or it may borrow the funds from the bank(s). The use of retained earnings to merge with a target must be adopted by a majority vote of shareholders present at a meeting attended by shareholders holding and representing at least three-quarters of the total number of issued and outstanding shares (Article 316 of Company Law). It is not easy to get approval from a three-quarters majority of shareholders because they may not want to sacrifice present dividends for earnings in the future. Borrowing from the bank is also difficult, especially as the big banks are government-controlled (national, provincial or city banks) and bankers are habitually very conservative.

The acquired firm's shareholders may prefer a cash offer because the amount is precisely known, and with that information they can decide how to adjust their portfolios. When the acquired firm's shareholders suspect that the acquiring firm will not improve the performance of the acquired company, they prefer a cash offer to a share exchange. From the viewpoint of the acquiring firm's management many individual shareholders are loyal to the Board of Directors. If the acquiring firm considers that the issuing of stock might dilute its shares or earnings and affect its control or benefits, it may choose cash as the method of payment.

Ross (1977)[28] postulated that managers, as insiders, have extra information about their own companies which outsiders are not privy to. Myers and Majluf (1984) consider that the managers of a firm often have better information than do outsiders. Sometimes acquiring firms are afraid that the acquired firms may have a contingent liability or that litigation problems may surface after the transaction. The exchange of common stock may decrease the risk of overestimation or underestimation of the value of the acquiring and acquired firms. If a transaction involves equity securities, capital gains taxes may be deferred until the new securities are sold, while for cash transactions, all relevant income tax must be paid in the year of the transaction (Article 14 of Income

Tax Law). Thus, we expect that tax regulations will significantly affect the preferred payment method. The stock market entered a bull phase in 1988 in Taiwan, the acquired enterprise's shareholders may prefer to accept stock and the acquiring firm can afford to haggle over the amount of stock it offers. These may explain the reason why common stock exchange is the most common payment method.

Subscription warrants offer the target's shareholders the right to subscribe to the ordinary shares of the acquiring firm at a given price and from a certain date. They carry no income or other rights to equity. However when the date falls due, and the market price of the associated share is higher than the subscription price the shares become valuable. Subscription prices usually exceed market prices so the issue of a warrant is a risk for the acquiring firm. A high (or low) subscription price will affect the acquiring firm's profits after the transaction.

Corporate bonds, convertible bonds and preferred stock are comparatively rarely used as financing methods for mergers or acquisitions. The main problems are : (1) It is very difficult to estimate what interest rate or dividend will attract the shareholders of the target firm. (2) The acquiring firm needs to pay interest or dividends to the acquired firm's shareholders. If the acquiring firm offers high fixed interest rates or dividends to entice the target company's shareholders at a time of high interest rates, this will reduce its profits in the future. Interest payments are tax deductible but dividend payments are not. Fixed interest rates or dividends and the future prospects of the acquiring enterprise will affect the offering price and further influence its post-transaction profit performance.

For Taiwanese enterprises, whether the payment is a cash offer, an exchange of shares, or an alternative method depends on three considerations. The first is tax and government regulations. The second is the future prospects of the acquiring enterprise as perceived by the acquired firm's shareholders. The third is the level of activity of the stock market.

6.6 THE RELATIONSHIP BETWEEN THE PRE-TRANSACTION SIZES OF ACQUIRING FIRMS AND DIFFERENT METHODS OF PAYMENT

The t-test for an independent acquiring enterprise's average pre-transaction assets and its main method of payment is displayed in Table 6-6-1. The results indicate that there were significant (at $\alpha = 0.05$) differences in acquiring firms' average assets before each transaction depending on whether the transaction was paid for by a cash-from-reserves offer or by an exchange of common stock.

The mean of the pre-transaction assets of acquiring firms using cash from reserves as the main method of payment was significantly smaller than that for those not doing so. This indicates that the size of the pre-transaction assets of acquiring firms using cash from reserves as the main method of payment was relatively small in Taiwan between 1990 and 1995. It may imply that (1) if the assets size of acquiring firms is small, acquired firms' shareholders prefer cash offers as the main payment method. and/or (2) the directors of relatively small acquiring firms may consider that a cash offer will not dilute the firm's shares nor affect their control.

The mean of the pre-transaction assets of acquiring firms using common stock as the main method of payment was significantly greater than that for those not using it. That is, the greater the size of the assets of the acquiring firm, the more preferable was common stock for the shareholders of the acquiring and acquired firms. This result may indicate that (1) the acquired firm's shareholders prefer the large acquiring firm's common stock, predicting that the combined enterprise's prospects are good. (2) the dispersal of shareholding in large firms is already very large so acquiring firms' managers are not afraid of the consequences of issuing new shares to their targets.

If we further study detailed differences in acquiring firms' average pre-transaction assets by main methods of payment, the results are shown in Table 6-6-2. Only one difference between firm sizes for different mediums of payment is significant. The average pre-transaction assets of acquiring firms which used common stock as the

main method of payment were significantly (at $\alpha = 0.05$) greater than those of acquiring firms which used cash from reserves. This indicates that (1) if acquiring firms have a greater value of assets, the dispersal of shares in large firms may already be substantial such that the acquiring firm's managers are not afraid to issue new shares to the acquired firm or the shareholders of the acquired firms prefer to ask for a common stock exchange rather than a cash offer. (2) the acquired enterprise's shareholders perceive or predict that the large acquiring enterprise promises better future prospects. (3) if the acquiring firm uses cash from reserves as the main payment method, then, as cash availability is limited, so the bidding firm tends to be relatively small. This result implies that the pre-transaction assets of acquiring firms will influence the method of payment.

6.7 DIFFERENCES BETWEEN THE INCREASE IN TOTAL ASSETS POST-TRANSACTION FOR DIFFERENT PAYMENT METHODS

T-tests for differences between the size of independent acquiring enterprises' changes in total assets by the main methods of payment are shown in Table 6-7-1. The results indicate that there were significant (at $\alpha = 0.05$) differences in acquiring firms' average change in total assets depending on whether they were using cash from borrowings or not, and whether they were using an exchange of common stock or not.

The average change in assets of the acquiring firms using cash from borrowings as the main method of payment was significantly smaller than the average change in assets of acquiring firms not doing so. This suggests cash from borrowings is used to finance the purchase of small rather than large acquired firms. One explanation might be that the government-controlled banks in Taiwan do not like to offer substantial funding to acquiring firms to buy relatively large firms in order to avoid assuming too much risk. Consequently, acquiring firms can only use a limited amount of cash from borrowings in order to merge with a smaller target.

The average change in assets of acquiring firms using common stock as the main method of payment was significantly greater than that of acquiring firms not doing so. This indicates that those acquirers offering common stock as the main method of payment to their acquired firms' shareholders, enjoyed the greatest increase in the size of their total assets. This also suggests that issuing common stock through the original shareholders or inviting the public to subscribe to shares is an important means of financing large acquisitions.

Table 6-7-2 shows the variation of acquiring enterprises' average change in total assets by different main methods of payment. The average change in total assets of acquiring firms using common stock as the main method of payment was significantly (at α = 0.05) greater than that of acquiring firms using cash from reserves or cash from borrowings. This implies that the exchange of common stock offers greater funds to the acquiring firm in the acquisition of a new firm than does a cash offer.

6.8 THE RELATIONSHIP BETWEEN THE MAIN METHOD OF PAYMENT AND THE METHOD OF VALUATION OF THE ACQUIRED ENTERPRISE

A test of independence between the main method of payment of the acquiring enterprise and the method of estimating the value of the acquired enterprise is displayed in Table 6-8-1. The result indicates that the computed value of χ^2 = 30.1256 is greater than the critical value of χ^2, so the null hypothesis of independence can be rejected and it can be concluded that the main method of payment of the acquiring enterprise and the method used to estimate the value of the acquired enterprise are associated.

The association between the main method of payment of the acquiring firm and the method used to estimate the value of the acquired firm is shown in Table 6-8-2. The phi coefficients ranged from -.266 to .257, which indicates that there is either a low positive or a negative association between the main method of payment of the acquiring firm and the method used to estimate the value of the acquired firm.

There was a significant (at $\alpha = 0.05$) negative association between acquiring enterprises using cash from reserves and whether book value was used to estimate the value of their acquired enterprises. This result indicates that if acquiring enterprises use the book value estimation method, there is a lower chance that the shareholders of the acquired firms will accept the cash offer. However, there was a significant positive association between the use of cash from reserves and the use of replacement cost or cash flow value as the valuation methods. This result indicates that if acquiring enterprises adopt replacement cost value or cash flow value as their estimation methods, there is a higher probability that the targets' shareholders will accept the cash offer.

There was a significant positive association between the use of cash from borrowings to pay for the acquisition and the use of replacement cost or cash flow value to estimate the worth of the acquired enterprise. This result indicates that where acquiring enterprises use these estimation methods, there is a greater chance that the transaction will be paid for by cash from borrowings. This implies that banks are highly likely to offer funds to bidders using replacement cost or cash flow value estimation methods to estimate the value of their targets.

Book value is not a good measure of the true value of a firm's assets because it is based on their historical cost. This value may drop far below actual asset values when there is rapid inflation and book value often overlooks the value of intangible assets.[29] A book value estimation suggests an apparent underestimation of the value of the acquired firm so a target firm's shareholders are not likely to accept the cash offer. This result is similar to that found by Hansen (1987). Hansen concluded that when a target firm knows its value better than a bidding firm does, the acquiring firm will prefer to use a share-for-share exchange rather than a cash offer. In contrast, replacement cost or cash flow value estimation are more accurate indication of present market prices. In these circumstances, the target firm's shareholders are more likely to accept the cash offer.

There was a significant positive association between the use of common stock and the choice of book value to estimate the value of the acquired enterprise. This result indicates that if the acquiring enterprise uses book value, there is a greater chance that common stock will be the main method of payment. There was a significant negative association between payment by common stock and the use of cash flow value to value the acquired enterprise. This result indicates that where acquirers use cash flow value to estimate the value of their targets, there is less chance that common stock will be the main method of payment.

Although book value apparently underestimates the value of proposed targets, an acquired firm's shareholders may still agreed to a common stock exchange. In this kind of case, the bidder may deliberately underestimate their shares' value or they may increase the exchange ratio to a level acceptable to the acquired firm's shareholders.

6.9 CONCLUSION

For Taiwanese mergers and acquisitions, the most common payment method is by 'common stock'. Payment is made either by means of a cash offer or by an exchange of shares depending on three considerations. The first is tax and government regulations. The second is the future prospects of the acquiring enterprise as perceived by the acquired enterprise's shareholders. The third is the level of activity of the stock market.

The size of the mean pre-transaction assets of acquiring firms using cash from reserves as the main method of payment was significantly smaller than those not doing so. This may imply that if the assets size of acquiring firms is small, the acquired firms' shareholders may prefer cash offers as the main payment method and the directors of small acquiring firms may consider that the offer of cash will not dilute the firms' shares nor affect their control. The size of the mean pre-transaction assets of acquiring firms using common stock as the main method of payment was significantly greater than those not doing so. This result indicates that acquired firms' shareholders prefer

the large acquiring firm and predict that the combined enterprise has good prospects. The dispersal of shareholding in large firms, being already very large, will ensure that acquiring firms' managers are not afraid to issue new shares to the target, as the dilution of power is not an issue.

The average pre-transaction assets of acquiring firms which used common stock as the main method of payment were significantly greater than those of acquiring firms which used cash from reserves. This indicates that (1) the dispersal of shares in large firms may already be substantial such that the acquiring firm's managers are not afraid to issue new shares to the acquired firm or that the greater preference shareholders of the acquired firms have to ask for a common stock exchange rather than a cash offer. (2) the acquired enterprise's shareholders perceive or predict that the large acquiring enterprise may offer their own company better future prospects. (3) If the acquiring firm uses cash from reserves as the main payment method, and as cash availability is limited, it is likely that the bidding firm is relatively small. This result implies that the pre-transaction assets of acquiring firms will influence the method of payment.

The average change in total post-transaction assets of acquiring firms using common stock as the main method of payment was significantly greater than the average change in total post-transaction assets of acquiring firms using cash from reserves or cash from borrowings. This implies that the exchange of common stock enables the acquiring firm to raise more funds for an acquisition than does a cash offer.

If an acquiring firm's managers find a good acquisition opportunity, using cash from reserves may be the fastest and keeping business secret method for acquiring distribution channels, know-how, or rapid entry into new markets or new industries. The findings indicate that it is the public or the shareholders (as opposed to bankers) who are most likely to believe that the acquiring enterprise's managers can use the merger to reduce administrative expense, combine complementary resources or improve personnel management efficiency. However, the public or the shareholders do

not apparently believe that the goal of rapid entry into new markets or new industries can be achieved through the route of embarking on a merger.

There was a significant negative association between acquiring enterprises using cash from reserves to pay for the transaction and the use of book value to estimate the value of their acquired enterprises. However, there was significant positive association between the use of cash (reserves or borrowings) to pay for the acquisition and the use of replacement cost or of cash flow value to estimate the value of the acquired enterprise. This result indicates that book value is not a good measure because it is apparent underestimation of the value of the acquired firm so a target firm's shareholders are not likely to accept the cash offer. In contrast, replacement cost or cash flow value estimation method are more accurate indication of acquired firm's value. In these circumstances, the target firm's shareholders are more likely to accept the cash offer.

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[1] Wansley, James W., William R. Lane, and H. C. Yang, "Abnormal Returns to Acquired Firms by Type of Acquisition and Method of Payment," *Financial Management*, 12, Autumn 1983, pp. 16-22.
[2] Franks, R. J., R. S. Harris, and C. Mayer, "Means of Payment in Takeovers: Results for the United Kingdom and the United States," in A. J. Auerbach (ed.), *Corporate Takeovers: Causes and Consequences*, University of Chicago Press, 1988, pp. 221-258.
[3] Article 14 of Income Tax Law.
[4] Public announcement in accordance with an official order by the Ministry of Finance # MOF (70) 34160, dated May 23, 1981.
[5] Huang, Y. S. and R. A. Walking, "Target Abnormal Returns Associated with Acquisition Announcements--Payment, Acquisition Form, and Managerial Resistance," *Journal of Financial Economics*, 19, 1987, pp. 329-349.
[6] Peterson, D. R., and Peterson, P.P., "The Medium of Exchange in Mergers and Acquisitions", *Journal of Banking and Finance*, 15, 1991, pp. 383-405.
[7] The gross consolidated income of an individual must be the aggregate of the following categories of income for the whole year:
Income from profit-seeking dividends received by the shareholder of a company; profit received by a member of a co-operative; profit payable each year to a partner of a profit-seeking partnership; profit derived each year by a sole proprietor from the operation of an enterprise invested in solely by him; and, profit derived by an individual from occasional trade. All come under this class of income (Article 14 of Income Tax Law).
[8] Promulgated December 26, 1929 by the Nationalist Chinese Government; Entered into force July 1, 1931; Last amended November 10, 1990.
[9] Special shares issued by a company shall be redeemable out of the net profits or proceeds realised from the issue of new shares provided, however, that the rights vested in holders of special shares pursuant to the articles of incorporation shall not be prejudiced (Article 158 of Company Law).
[10] Where before a resolution is adopted at a shareholders meeting to authorise any of the transactions referred to in the first paragraph of the preceding Article (i.e. to transfer the entire or a substantial portion of its business or property; or to acquire the business or property of other persons to such an extent as may substantially affect the business activities of the company,) a shareholder has served notice in writing on the company indicating his dissent to the proposed transaction and where he also

has raised his objection thereto at a shareholders meeting, he may request the company to redeem all of the shares held by him at the then current fair price; provided, however, that the resolution is not one concerning the transaction referred to in subparagraph (2) of the first paragraph of the preceding Article and the resolution is also related to the dissolution of the company (Article 186 of Company Law).

[11] In the case of a merger or consolidation with another company, the Board of Directors shall prepare a merger or consolidation agreement on matters related to the merger or consolidation and submit the same to a shareholders meeting; a shareholder who dissents either in writing or verbally with regard to the proposed merger or consolidation before or at the shareholders meeting may forfeit his voting power and request the company to redeem his shares at the then current and reasonable price, if his verbal dissent is recorded in writing (Article 317 of Company Law).

[12] Article 4-1 of Income Tax Law. Public announcement in accordance with an official order by the Ministry of Finance # MOF (77) 770665140, dated October 29, 1988.

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CHAPTER 7

THE POST-TRANSACTION PERFORMANCE OF MERGERS AND ACQUISITIONS--UNIVARIATE ANALYSIS

7.1 INTRODUCTION

The acquisition of a firm opens up many questions on the post-transaction performance of the firm. Amongst the questions that may be asked are the following. When an acquiring firm transacts with another company, how does its post-transaction performance compare with its previous performance? Does the firm's asset size affect the post-transaction performance? Do transactions within the same business group fare better or worse? Is there any association between the type of a merger or acquisition and post-transaction performance? What is the correlation between the motives for merging and post-transaction performance? Is there any correlation between the pre-transaction performances of the acquiring and acquired firms and the post-transaction performance of the acquiring firm? If the acquiring firm has transaction process problems, do they influence its post-transaction performance?

To understand the post-transaction performance during the period 1990-1995 of Taiwanese enterprises, this chapter applies univariate analyses to test a number of hypotheses relating to the above questions. The next chapter in contrast, applies multivariate analyses to identify which variables are significant predictors of superior post-transaction performances. This chapter is arranged as follows. In the next section, we present the hypotheses and the independent variables relating to the acquiring firm. The questionnaire responses relating to the post-transaction performance of Taiwanese enterprises which had merged with, or acquired, others are described in the third section. The relationship between a firm's size and its post-

transaction performance is discussed in the fourth section. The fifth section analyses business group transactions and post-transaction performance. Associations between the different types of mergers and acquisitions and post-transaction performance are presented in the sixth section. The seventh section classifies the acquiring enterprise's motives and rationales for merger and acquisition by its post-transaction performance whilst the comparison of previous and post-transaction performance of the acquiring enterprises is reviewed in the eighth section. Problems with the transaction process are measured against post-transaction performance in the ninth section. The final section presents the conclusions.

7.2 HYPOTHESES AND VARIABLES RELATING TO POST-TRANSACTION PERFORMANCE

This chapter examines eight groups of variables. The hypotheses and the independent variables are discussed below.

1. Size hypothesis: The greater the increase in size (total assets) as a result of the merger or take-over, the greater the improvement in post-transaction performance.

The first test's variable is the acquiring firm's size (total assets). Teng and Chen (1979)[1] find that small and medium sized enterprises encounter difficulties in securing finance. Liao (1985)[2] mentions that the weakness of the small and medium sized firm is due to the frailty of its capital structure and the shortage of its own funds. Liu (1993)[3] considers that small and medium enterprises find it more difficult to obtain funding than do large enterprises, so the cost and capital risk are relatively high. Li, Chen, and Chang (1993)[4] indicate that the relatively weak financial management of small and medium businesses makes it difficult for them to secure funds.

On the whole, large enterprises have greater capital, higher production scales and greater market share. Thus, they are better placed than small firms to achieve better

operating and financial performance. As regards operations, large enterprises have better access to finance so they are more likely to enlarge the scope of their production activities and achieve economies of scale. In the case of financial synergy, large enterprises have better goodwill and credit so they find it relatively easy to raise funds and to increase their debt capacity, even to the extent of being able to avail themselves of lower rates from banks or money markets. As regards marketing, large enterprises have greater market share and market power, and so they may have greater opportunities for co-operative pricing (Stigler, 1968).[5] Hall and Weiss (1967)[6] conclude that size matters: larger firms tend to achieve high profit rates. So we hypothesise that the greater the increase in size (total assets) as a result of the merger or take-over, the greater the improvement in post-transaction performance.

2. Business group hypothesis: If acquiring and acquired firms do not belong to the same business group, such acquiring firms achieve better post-transaction performances than those which belong to the same business group.

Fang (1990)[7] mentions that if acquiring and acquired firms are in the same business group, the terms and conditions of a transaction are easier to achieve than if they are not. The management or main shareholders can still control the firm and there is likely to be less resistance from employees involved in the business group's transaction. The ease of achieving agreement between business group companies may imply however, that the transaction has not been thoroughly and carefully considered. The group may face a serious disadvantage. Normally the business group's small companies are run by the family (spouse or children) or by relatives (brother or sister) of the chairperson or general manager who operates a large and superior company. If the family or relatives of the chairperson or general manager do not have the same or better management ability, the small companies will have inferior operating performance. An acquiring firm can usually replace an incompetent manager but it is difficult, in a normal situation, to dismiss family members or relatives. So we hypothesise that if acquiring and acquired firms do not belong to the same business group, such acquiring

firms achieve better post-transaction performances than those which belong within the same business group.

3. The types of transaction hypothesis: There are no differences in the post transaction performances of acquiring firms as a direct consequence of the differing types of transaction.

It is often considered that horizontal and congeneric transactions are more likely to exploit their operating synergistic advantages, e.g. economies of scale, marketing channels, research and development, etc., as the managers are familiar with the same or similar products, production techniques and with the organisational structure of the corporation. Shelton (1988)[8] found that strategic fits are of considerable importance in determining the total gains generated through acquisition. The related-supplementary fits (i.e. similar products and new customers) and identical business fits (i.e. similar products and similar customers) provide significant opportunities for value creation. Unrelated fits (i.e. new products and new customers) offer the least chance to generate value. However, Singh and Montgomery (1987)[9] have investigated whether firm acquisitions involving related technological resources or similar product markets create superior economic returns in comparison with unrelated acquisitions. Their findings indicate that acquiring firms engaged in related acquisitions do not have significantly or abnormally higher returns than firms in unrelated acquisitions.

Lewellen (1971)[10] and Higgins and Schall (1975)[11] present the coinsurance hypothesis and argue that if the combined firms do not have perfectly correlated earnings, such mergers decrease the chances of bankruptcy. That is, the more conglomerate the features of the acquisition the lower the risk of bankruptcy to the combined firms. Diversification helps to stabilise the firm's earnings stream. When the firm's cash flow stabilises, the risk of bankruptcy declines and the firm may increase its debt capacity. The interest on the debt is tax deductible thus reducing the cost of the debt. Benefits from financial diversification are likely to be higher for

conglomerate acquisitions than for other acquisition types. Agrawal et al. (1992)[12] found that non-conglomerate mergers display significantly inferior performance (cumulated average abnormal returns) than do conglomerate mergers over the five-year post-merger period. But Jensen (1986)[13] found that conglomerate mergers are less likely to succeed because the acquiring firm's managers are not familiar with their acquired firm.

Large companies normally like to control their raw material as much as possible to avoid shortages and to decrease costs. The other advantages of vertical integration are that by-products may be exploited, administration costs (e.g. ordering, inspection, and accounting, etc.) are reduced, and co-ordination and communication difficulties are easier to resolve. Lubatkin (1987) found that there are no significant post-merger performance differences amongst different types of bidders and targets (that is horizontal and market concentric, product concentric, vertical, and conglomerate transactions). Seth (1990)[14] also found that different sources of value creation are likely to emerge from different types of acquisition, i.e. value is created in both related and unrelated acquisitions. Related acquisitions do not create more value than unrelated acquisitions. These empirical studies indicate mixed results. However, there are reasons why profit rates may be expected to increase in all cases, but it is almost impossible to say, as a general tendency, which type is most likely to lead to the greatest increase in profit rates. So we hypothesise that there are no differences in the post transaction performance of firms as a consequence of the different types of transaction.

4. Merger motive hypothesis: The more important the motive to increase profits or the profit rate through merging or acquiring, the greater will be the post-transaction performance of the acquiring firm.

The fourth group of variables are the motives for mergers and acquisitions which relate to profit increases. Ingham, Kran and Lovestam (1992)[15] used questionnaires to explore the relationship between merger motives and performance in UK companies.

The three most important merger motives were to increase profitability, to gain additional market power and to achieve economies of scale in marketing. The results indicate that 77% of managers consider that in the short-run of 0-3 years, their profitability increased after the merger and 68% of managers consider that over the long run, of more than three years, their profitability increased.

Gains can be created in a merger through economies of scale. If an acquiring firm attaches great importance to the motive of economies of scale, it indicates that the acquiring firm would like, through the merger, to share people, equipment, and overheads. This sharing would reduce its per unit production cost and its administrative expenses, thus increasing its profits. When the acquiring firm shares or increases its distribution channels, it can also share the acquired firm's original distributors and customers and increase its sales to, and benefits from, these new customers after the transaction. Acquiring brands, patents or copyrights or sharing research and development personnel or facilities will increase the acquiring firm's sales, improve its production quality, decrease its expenses and enhance its market competitiveness, therefore expanding its profits. If a firm enters into a new area or industry and yet lacks the appropriate know-how or distribution channels, this move can be very risky and costly. Mergers often provide a rapid and safe way to enter new markets or industries. A large company will usually want to exercise as much control over the production process as possible to secure its sales. Merging with a supplier so as to control material resources can eliminate its out-of-stock probability, facilitate its co-ordination and administration and/or utilise its by-products and hence reduce its cost and increase its earnings. Different companies promise different advantages. For example, one firm may specialise in research and development and invent a good product but may not have enough finance or outstanding marketing personnel to sell the innovation. Another firm may have a surplus of funds and a shortage of good investment opportunities. If these two types of company can integrate their complementary resources, the combined firm can increase its sales and profits and even expand its total value.

When the earnings from two companies are less than perfectly positively correlated, diversification can lead to a more stable cash flow and hence reduce the chance of bankruptcy. Companies in different industries enjoy various levels of profitability and of cash flow during the changing business cycle. Stabilisation of earnings is certainly beneficial to a company's employees, customers and suppliers. But is it an advantage to the company's shareholders? The argument is that if an investor is worried about earnings variability, he/she can diversify through the stock market more easily than the company can through acquisition. Why may a company want to merge with another one to diversify its risk? The reasons may be as follows. (1) The major shareholders of a company do not want to sell their stock to diversify, because this would dilute their ownership and generate a tax liability. (2) If a company fails, its assets cannot be sold for their value 'in use' and the shareholders would only receive a low pay-out after liquidation (because of legal and accounting expenses, etc.). (3) The managers' reputation may be spoiled if a company is liquidated. (4) Tax incentives: if the acquiring firm has net operating losses, the combined firm can deduct from its future profits and balance its books backwards for up to five years.[16] (5) Financial synergy: the more stable earnings of the company after a merger may reduce the risk of default or bankruptcy because the losses of one firm can be compensated for by the income of the other (Lewellen, 1971).[17] If the merged firm can solve its financial difficulties and reduce the risk of default or bankruptcy, it may increase its debt capacity or financing and avail itself of cheaper borrowing than would be possible if the units remained separate.

The horizontal merger of two firms can result in greater market share. This increase could lead to economies of scale. Stigler (1968) considers that in horizontal mergers, large firms have greater market share and market power, so they may have greater opportunities for collaboration. The anticompetitive activities of mutual dealing or tie-in sales result in market power-related gains (Lorie and Halpern, 1970).[18] Increased market power can earn super normal profits (Singh and Montgomery, 1987).[19] If a company applies for listing on the stock market, it needs to demonstrate a good operating performance together with some additional requirements.[20] If it can

achieve these requirements and be approved by the government (i.e. Securities and Exchange Commission), then the public will normally believe that this company's operating situation is very good and its future holds potential. When the company issues its shares on the stock market, the par value (NT $10) of one share will quickly increase. The newly listed company can make abnormal gains from the stock market. At the same time, the listed company can also enhance its public image and reputation. That is why many companies actively apply for a listing on the stock market and this motive is one of the special merger motives in Taiwanese enterprises. If the acquiring firm can comply with the government's regulatory requirements, it also can enjoy some tax advantages in addition to its application for listing on the stock market. These tax advantages include tax exemption or deferment[21] (a merger or consolidation may be exempt from all income tax, stamp tax and deed tax and may defer its land-value increment tax), accelerated depreciation[22] (instruments and equipment for exclusive use in research and development and/or inspection of pilot products, machinery and equipment used for energy saving purposes or as alternate energy sources, or the requirements for adjustment of industrial structure and improvement of scale of operations and methods of production) and tax credit[23] (the combining firm can accommodate the acquiring firm's net operating loss backwards for five years), etc. In addition, tax benefits can be created in a merger through the revaluation of previously depreciated assets; the advantage emerges after the increased depreciation related to this revaluation of assets is gained. Governmental encouragement or support together with tax advantages may increase the acquiring firm's sales and/or reduce its taxes and so further increase its net income. In consequence, it is more likely to have better profits after the transaction. If ineffective managers (including those in marketing, production, finance, personnel, purchasing and research and development) can be replaced by efficient managers through a merger, and the latter's superior operating ability is applied to the combined firm, there should be a creation of wealth.

Some firms have found that it is cheaper to purchase assets through an acquisition than to set up a new company, especially when the target firm's assets (i.e. real

estate, machinery and equipment, or stock value) are undervalued. A less expensive purchase can decrease the acquiring firm's expenses and increase its profits or value. Jensen (1986)[24] observes that if a firm is in a mature industry with a surplus of operating cash flow and a shortage of profitable investment opportunities, the managers of such a firm will want to acquire another one rather than to distribute their surplus cash to shareholders because the pay out of free cash reduces the resources under their control and thereby reduces their power. In addition, if managers return the surplus cash to shareholders, at a later stage the managers may find profitable investment chances and need to seek financing again. The difference of objective between shareholders and managers is an agency problem. Fama (1980)[25] considers that compensation arrangements (based on performance which offers bonuses and stock options for managers) and the stock market monitoring devices may mitigate the agency problem. Fama and Jensen (1983)[26] find that a low stock price puts pressure on managers to change their attitude and to operate their firm to meet shareholders interests. But Jensen (1986) considers that the agency costs that result from conflicts of interest cannot be perfectly solved. We assume that the stock market is efficient in the strong sense[27] and the motives for merger so as to make use of surplus funds, buying below replacement cost, and gaining potential real estate or other related values is neutral for post-transaction profits performance.

No matter what merger motives acquiring firms have, they focus their attention on reducing expenses or costs, increasing their distribution channels, improving their management efficiency, combining complementary resources, enhancing market competitiveness, and finally making greater profits. So we assume that the more important the motive to increase the level of profits or profit rate by means of merger or acquisition, (that is, reductions in cost or increases in revenue) the greater will be the post-transaction performance of the acquiring firm.

5. The main method of payment hypothesis: The main method of payment will affect the post-transaction level of profits or the profit rate performance of the acquiring firm.

The main method of payment used in the merger or take-over may influence the post-transaction level of profits or profit rate performance of acquiring firm. These influences mainly involve tax factors and information and regulation effects. Carleton, Guilkey, Harris and Stewart (1983)[28] argue that cash take-overs may be quite different from non-cash take-overs; failing to distinguish between them might result in unsatisfactory generalisations. If the acquired firm's shareholders receive common stock in exchange for their own stock, this results in a tax-deferred merger until the shareholder sells the shares. When take-overs are accomplished by an exchange of cash, the transactions of the target firm's shareholders are taxable and any gains are taxed immediately. This cash offer reduces the after-tax returns to the acquired shareholders. Owing to the tax factor, the acquiring firm needs to pay higher premiums for cash offers than using stock to compensate target shareholders for the instant payment of taxes.

Myers and Majluf (1984)[29] mention that the method of financing an investment implies the holding of some information. When the firm uses common stock to finance a new project, it may deliver the message that the acquiring firm's managers consider their own shares to be overvalued and this may cause the returns to bidders to be negative. When the acquiring firm uses debt to finance a new investment, it may imply that bidding managers consider their common stock to be undervalued.

Wansley, Lane and Yang (1983)[30] find that a stock-for-stock exchange needs several months to get approval from the Securities and Exchange Commission while cash payments to acquire target shares can take several weeks. Longer transaction times on the stock offer provide the acquired management with more chance to mount a defence and potential bidders may be attracted to join in the fray. As a result the acquiring firm needs to offer higher premiums to its target and these extra premiums will influence its post-transaction profit performance.

Samuels et al. (1994)[31] state that although it is difficult to believe that the company share price completely reflects the true value of a share, they believe that in the long run the actual share price will move towards its true value as based on expected earnings. Wansley, Lane, and Yang (1983) found higher abnormal returns for cash offers than for stock offers. The acquired firm's cumulative average return (CAR) for the 41 days through to the announcement date, when the method of payment was cash, was 33.54%, as compared with 17.47% when securities were used. Franks, Harris, and Mayer (1988)[32] found that over the period of analysis covering months -4 to +1, acquisitions paid for by cash offers had significant positive abnormal returns for the bidding firms in the United States, but this was not found to be significant in the United Kingdom. No significant abnormal returns for bidding firms which paid by offers of equity were found either in the United States and the United Kingdom. Travlos (1987)[33] concludes that bidding firms suffer significant losses in pure stock exchange acquisitions, but when paid for by cash they experience normal returns on the announcement day. This finding is consistent with the information hypothesis, which implies that financing a take-over through exchange of common stock conveys the negative message that the bidding firm is overvalued. Peterson and Peterson (1991)[34] find that cash provides the greatest returns for the acquired firm's shareholders while stock provides the lowest returns. This result is consistent with the tax effects. The observation that the use of cash results in statistically significant wealth gains to acquisitions, whereas acquisitions that do not employ cash do not experience significant wealth gains, lends support to Jensen's free cash flow theory. Trifts (1991)[35] concludes that cash offers show positive but insignificant returns, while stock offers yield significant negative returns. The conclusion that cash offers outperform stock offers around acquisition announcements is similar to the conclusions of Travlos (1987) and Wansley, Lane, and Yang (1987). Lo (1991)[36] finds that acquiring firms reap positive cumulative average residuals when using an exchange of common stock but suffer negative cumulative average residuals when cash is used. However, neither payment method suggested significant cumulative average residuals for the period +6 to +15 days in Taiwanese listed companies during the period 1989-1990.

Corporate bonds, convertible bonds, and preferred stock are seldom used as methods of payment for mergers or acquisitions. The main influence on the post-transaction profit performance is that the acquiring firm needs to pay the fixed interest or dividend to the acquired firm's shareholders. If the acquiring firm offers high fixed interest rates or dividends to attract the target company's shareholders at a time of high interest rates, this will decrease the post-transaction profit performance and vice versa. Interest payments are tax deductible but dividend payments are not. Fixed interest rates or dividends and tax factors will affect the offering price of the acquiring firm and further influence its post-transaction profit performance. Subscription warrants offer the target's shareholders the right to subscribe to the ordinary shares of the acquiring firm at a fixed date and price. Subscription prices usually exceed market prices so the issue of a warrant is a risk for the acquiring firm. A high (or low) subscription price will affect the acquiring firm's post-transaction profit performance. In the light of the above discussion, we assume that the main method of payment will affect the post-transaction profit performance of the acquiring firm.

In this study, we use dummy variables to indicate the main method of payment of the acquiring firm. If the acquiring firm chooses to use cash from reserves as the main method of payment, the value of the variable is set to one. If the acquiring firm does not, the value is set to zero. The value setting of the other choices--that is, cash (bank borrowing), common stock, subscription warrants or other payments--is the same as for reserve cash.

6. The estimation method of the value of the transacted firm hypothesis: The method used to value the transacted firm will affect the post-transaction level of profits or profit rate performance of the acquiring firm.

For several reasons it is not easy to estimate the value of a firm which may be acquired. For example, the value of acquiring superior management or the benefits from combining outstanding sales staff with an exceptional production department are

difficult to establish. These potential synergistic effects are not easy to measure using the historical data of the firms involved. Estimating the synergistic gain from combining two firms is very important but is difficult. The lack of precision in estimating increased market power, economies of scale, or reduction in bankruptcy costs, etc. makes an objective analysis hard to accomplish.

Many methods have been advocated in the literature as ways of valuing a potential acquisition. Four of these are:

(1) Book value

The book value of a company's net worth is the value of its assets less its outstanding liabilities. Normally book value is not the true market value of a firm's net worth because it is based on the historical cost of the firm's assets. Although the book value may not indicate real market value, it can still be used as a basic method to estimate the value of a target firm.

(2) Stock market value

If the company is listed on the stock market, the estimated value can be established on the basis of its market value. This estimation method is based on the fact that the stock market price indicates the collective opinion of investors as to a firm's cash flow potential and to its corresponding risk. Even though the stock market value approach is the one most often used in estimating a listed company, the share price can change very quickly so bidding firms which use this method need to be very careful.

(3) Replacement cost value

The replacement cost estimation method uses the cost of replacing an asset, as opposed to its historical cost, either in its present form or as the cost of obtaining equivalent services. The bidding firm can value the target firm's fixed assets which reflect the cost of gaining comparable assets from the second hand market.

(4) Cash flow value

Cash flow is the amount of cash being received and expended by a business. The bidding firm may use the cash flow approach to estimate what incremental net cash flows will be available to it as a result of the merger or acquisition. The present value of the cash flows are determined with this aim in mind.

The bidding firm needs to check the accounts of the target firm to ensure that their estimation is acceptable. The bidding firm also needs to standardise the accounts of the target firm if it is to understand the impact of the merger or acquisition on its post-transaction profit performance. The present and future tax liability of the target firm should be considered too. Contingent loss or litigation problems should be deliberately considered if it is probable that a future issue will confirm the loss and if it can be estimated with reasonable accuracy. The book value estimation method using historical cost data may underestimate the target company's value. The estimation method based on stock market value is only suitable for listed companies and the share price varies every day. It is difficult to accurately evaluate the target firm's overall goods, machinery and equipment through the replacement cost estimation method. The cash flow method hypothesises about growth and revenues in the future and must include many uncertainties.

It is very apparent that different valuation methods result in different prices. Theoretically speaking, significant underestimation of an acquired firm's value would not be accepted by its shareholders. On the other hand, an overestimation of the acquired firm would seriously affect the acquiring firm's post-transaction profits. Normally the final price is negotiated by the two companies. The choice of valuation method will influence the acquiring firm's profits performance after the transaction. We hypothesise that the estimation method used to value the transacted firm will affect the post-transaction profits performance of the acquiring firm.

The sixth group of variables are dummy variables to represent the use or otherwise of each of five methods to value the acquired firm. If the acquiring firm chooses book value as the estimation method, the variable is set equal to one. If the acquiring firm

uses an alternative method, we set the value at zero. Dummy variables are also used to represent the use, or otherwise, of stock market value, replacement cost value, cash flow value or another estimation method (e.g. share par value or real estate reappraisement value, etc.).

7. The pre-transaction performance hypothesis: The better the pre-transaction performance of the acquiring firm relative to that of the acquired firm, the better will the post-transaction level of profits or profit rate performance be of the combined firm.

The differential efficiency theory assumes that if the acquiring firm has a superior operating and/or financial performance relative to that of the acquired firm and that the acquired firm's operating and/or financial performance is brought up to the level of the acquiring firm after the transaction, efficiency will be increased by the merger. It is reasonable to believe that an efficient management team will apply their abilities and resources to raise the standards of the acquired firm after the transaction. Thus, the acquired firm's operational performance will improve and the combined firm will enjoy improved post-transaction performance.

On the issue of diversification, an acquiring diversified firm will have lower debt costs than a less diversified acquired firm and so the former will have a better profit rate than the latter. If the former acquires the latter, the benefits of lower debt costs can also be gained by the acquired firm and so the profit rate of the combined firm will increase after the acquisition.

The superior acquiring firm, through differential efficiency and diversification, both upgrades the acquired firm's efficiency and reduce its debt costs. This makes it possible to increase sales, reduce interest expenses, and further expand income after the transaction. So we assume that the better the pre-transaction performance of the acquiring firm compared to that of the acquired firm, the better the post-transaction level of profits or profit rate performance of the combined firm will be.

(8) The transaction process problems hypothesis: The less "serious" the transaction process problems the better the post-transaction level of profits or profit rate performance of the acquiring firm will be.

Mitchell (1988)[37] found that clashes between corporate cultures are the first and most important reason why mergers fail. The other reasons are: people leave--the acquired firm's top management and other key people quit; the company has been bought at the wrong time in its corporate life cycle; and, culture shock--a big company swamps a smaller one with systems and people, etc.. Lin (1990)[38] indicated that assets and goodwill valuation and corporate integration are the most difficult problems during the transaction process period. No matter what transaction process problems an acquiring firm may suffer--whether corporate culture differences, management or employee drains, inaccurate asset valuation, shareholders resistance or litigation problems, etc.--if these problems are very serious, they will highly negatively influence the acquiring firm's post-transaction performance. We assume that the less serious the transaction process problems the better will be the post-transaction level of profits or profit rate performance of the acquiring firm.

The above discussion leads to the identification of different potential variables which may be expected to explain the probability that an acquiring firm will enjoy a superior post-transaction level of profits or profit rate. The hypotheses, and the variables that they imply, are summarised in Table 7-2-1. The sign ascribed to each variable indicates whether the probability of a superior post-transaction profit performance is expected to increase (+) or decrease (-) as that variable increases.

7.3 UNIVARIATE RESULTS

The questionnaire survey data was used to gain insight into the post-transaction level of profit and profit rate performance of acquiring firms in Taiwan between 1990 and 1995.

Table 7-3-1 indicates that the average values for post-transaction performance measured in terms of levels of profit (i.e. net sales, gross profits, operation income, and net income) and profit rates (i.e. earnings per share, dividends per share, price/earning ratio, and returns on total assets) ranged from 1.966 to 2.164 and from 2.268 to 2.330 respectively. These results indicate that the post-transaction performance of acquiring firms was superior in all of the measured values as compared with their pre-transaction profit performance. Furthermore, 67-73% of the firms responded that their post-transaction *level of profit* performance was superior or very superior compared to their pre-transaction performance; 21-24% of the firms indicated that their post-transaction level of profit performance was the same as their pre-transaction performance; while 4-8% of the firms indicated that their post-transaction level of profit performance was inferior or very inferior to their pre-transaction performance. 58-63% of the firms claimed that their post-transaction *profit rate* performance was superior or very superior compared to their pre-transaction performance; 24-31% indicated that their post-transaction profit rate performance was the same as their pre-transaction performance; while 9-12% indicated that their post-transaction profit rate performance was inferior or very inferior to their pre-transaction performance.

Table 7-3-2 shows that all of the T-tests or Kolmogorov-Smirnov Tests for the acquiring enterprise's post-transaction performance were significant. The results indicate that the managers of acquiring enterprises believe that the post-transaction performances of their companies were significantly better than their pre-transaction performances.

7.4 POST-TRANSACTION PERFORMANCE BY SIZE OF ACQUIRING ENTERPRISES

Various relationships may be postulated between the post-transaction performance achieved and the size of the assets of acquiring firms. According to the classification in Chapter 5, we divide the acquiring firm's total assets prior to the transaction into

four subgroups. The first subgroup (small enterprises) consists of acquiring firms with total assets of less than NT$ 100 million. There were seventy-five of these cases. The second subgroup (small-medium sized enterprises) consists of acquiring firms with total assets of greater than, or equal to, NT$ 100 million, but less than NT$ 200 million. There were thirty-five of these cases. The third subgroup (medium sized enterprises) consists of acquiring firms with total assets of greater than or equal to, NT$ 200 million, but less than NT$ 1,000 million. There were fifty-two of these cases. The fourth subgroup (large enterprises) consists of acquiring firms with total assets of greater than, or equal to, NT$ 1,000 million. There were fifty such cases.

Table 7-4-1 indicates that on all measures of performance, managers believed on average that their post-transaction performance surpassed their pre-transaction performance. Comparing across size classes, large enterprises had the lowest mean post-transaction levels of profit performance in terms of net incomes and operating incomes and had the lowest mean post-transaction profit rate performance values in earnings per share, dividends per share, price/earning ratio and returns on total assets. The medium-sized enterprises had the poorest post-transaction levels of profit performance mean values for net sales and gross profits. The small-medium sized enterprises had the greatest mean value of all post-transaction performances. These results indicate that the perceived post-transaction performance of the large and medium sized acquiring firms was greater than that of the small and small-medium sized acquiring firms.

Table 7-4-2 indicates the T-test of the differences between the mean scores for each estimated post-transaction level of profit and profit rate performance of the four subgroups. Large acquiring enterprises (size x_4) had significantly greater perceived improvement in all post-transaction performances (at $\alpha = 0.05$) compared to the small-medium acquiring enterprises (size x_2). The medium acquiring enterprises (size x_3) had significantly greater performance improvement in all the post-transaction levels of profit and had significantly greater post-transaction profit rate performance

improvement in earnings per share and dividends per share (at $\alpha = 0.05$) as compared to the small-medium sized acquiring enterprises.

The large acquiring enterprises also had significantly greater post-transaction levels of profit performance improvement in gross profits, operating incomes and net incomes and greater post-transaction profit rate performance improvements in earnings per share, dividends per share and price/earning ratios (at $\alpha = 0.05$) than did the small acquiring enterprises (size x_1). The medium-sized acquiring enterprises had significantly greater post-transaction levels of profit performance improvement in gross profits, operating incomes and net incomes and greater post-transaction profit rate performances improvement in earnings per share and price/earning ratios (at $\alpha = 0.05$) than did the small acquiring enterprises.

These results indicate that the large and medium-sized acquiring enterprises achieve greater increases in their operating and financial performance after the transaction than do small and small-medium sized acquiring enterprises. That is, the greater the size of the acquiring firm the better its post-transaction performance improvement will be. Why do large acquiring firms achieve better operating and financial performances after the transaction in Taiwanese enterprises? In general, a large enterprise has greater capital, higher production scales and greater market share. Thus, it may have greater opportunities to achieve better operating and financial synergy than small enterprises have. Considering operating synergy, most of the mergers and acquisitions in Taiwan are horizontal (see Table 3-6-1) so they are more likely than other types of merger to yield operational synergy. Large enterprises have greater capital so they find it comparatively easy to enlarge their production scale, obtain economies of scale and ensure more earnings per dollar of investment. In the case of financial synergy, large enterprises have better goodwill and credit so they find it comparatively easy to raise funds and increase their debt capacity, and even to gain lower interest rates from banks or the money market. Turning to marketing synergy, on the whole one would expect that large enterprises have greater market share and market power, and so have greater opportunities for collaborative activity.

The anticompetitive activities of mutual dealing or tie-in sales result in market power-related gains (Lorie and Halpern, 1970).[39] The results were similar to those found in the previous empirical study in Taiwan (Lin, 1990).[40]

Table 7-4-2 also shows the Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) of the difference between the median scores for each post-transaction performance of the four subgroup enterprises. The results of the U-test of the post-transaction performance for the four subgroups are similar to the results of the T-test.

7.5 THE POST-TRANSACTION PERFORMANCE OF ACQUIRING ENTERPRISES CLASSIFIED BY BUSINESS GROUP

We now discuss the acquiring enterprise's post-transaction level of profit and profit rate performance classified by business group. As shown in Table 7-5-1, if acquiring and acquired firms belong to the same business group, the post-transaction level of profit and profit rate performance's mean value for the acquiring firm ranges from 2.029 to 2.210 and from 2.326 to 2.387 respectively. This means that, on average, the post-transaction level of profit and profit rate performance of acquiring firms is superior to their pre-transaction performance. If acquiring and acquired firms do not belong to the same business group, the post-transaction level of profit and profit rate performance's mean value for the acquiring firm ranges from 1.588 to 1.878 and from 1.906 to 2.034 respectively. This indicates that the acquiring enterprise's post-transaction level of profit and profit rate performance significantly improves.

Table 7-5-2 shows the T-test of the difference between the mean scores for each post-transaction level of profit and profit rate performance for acquisitions within the same business groups, compared with the corresponding mean score for acquisitions between members of different business groups. If acquiring and acquired firms do not belong to the same business group, the acquiring firm has a significantly better estimated post-transaction level of profit performance in net sales and operating income, and has a significantly better estimated post-transaction profit rate

performance in earnings per share, dividends per share and price/earning ratio (at α = 0.05) compared to one which belongs to the same business group.

The results indicate that if firms do not belong to the same business group, acquiring firms achieve better perceived performance improvement after the transaction than those which belong to the same business group. Lin (1990)[41] found a similar result but it was not statistically significant.

One possible explanation for these results is that if acquiring and acquired firms do not belong to the same business group, the acquiring firm is better able to replace inefficient managers, lay off unnecessary employees, and increase the market power after the transaction than do those which belong to the same business group. Many members of a business group's management in Taiwan are made up of family or relatives. If one person is the chairperson or general manager of the large company, his/her family (spouse and children) or his/her relatives (brother or sister) will be amongst the management of the other small companies. These business group companies can help each other, especially with financial guarantees and assistance. But if the family or relatives do not have the same or superior management ability, the small companies will display a performance consistent with poorer management. When firms merge, an acquiring firm can usually replace the incompetent managers but this is seldom the case when family or relatives are involved.

The other possible explanation for these results is that if acquiring and acquired firms do not belong to the same business group, the acquiring firm needs to raise the transaction money either from the firm's shareholders or from the bank or money market so it has to present good reasons for why the transaction is reasonable and profitable to the shareholders/public or the bank. If this transaction plan is approved by the shareholders or bank, it indicates that not only do the acquiring firm's managers believe in the reliability and profitability of this transaction but that this faith is shared by the shareholders, bankers and financial institute investors. These

careful preparations and considerations increase the probability that the acquiring firm will achieve its goal and achieve a better post-transaction performance.

Table 7-5-2 also displays the Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) of the difference between the median scores for each post-transaction performance within or outside the same business groups. The results of the U-test were similar to the results of the T-test.

7.6 THE POST-TRANSACTION PERFORMANCE OF ACQUIRING ENTERPRISES CLASSIFIED BY THE TYPE OF THE TRANSACTION

As shown in Table 7-6-1, on average, horizontal transactions by acquiring firms enjoyed the best post-transaction levels of profit and profit rate performances on all measures of performance in comparison with other types of transaction. That is, gross profits, operating incomes, net incomes, earnings per share, dividends per share, price/earning ratios and returns on total assets compared well in horizontal transactions as opposed to other types of transaction.

Acquiring firms which were vertically integrated had the best post-transaction performance in net sales, but the worst post-transaction levels of profit performance in net income and in returns on total assets compared to the other types of transaction. Congeneric transactions by acquiring firms had the worst post-transaction levels of profit performance in operating income and the worst post-transaction profit rate performance in earnings per share, dividends per share and price/earning ratio than the other types of transaction. Conglomerate transactions by acquiring firms had the worst post-transaction levels of profit performance in net sales and gross profits than the other types of transaction.

Differences in post-transaction levels of profit and profit rate performance between acquiring firms involved in different types of transaction are presented in Table 7-6-2. The results of the T-test indicate that acquiring firms' horizontal transactions had

significantly better post-transaction levels of profit performance improvement in net sales, gross profits, and operating income and had significantly better post-transaction profit rate performance improvement in earnings per share (at $\alpha = 0.05$) than did conglomerate transactions. Acquiring firms which engaged in horizontal transactions also had significantly better post-transaction profit rate performance improvements in earnings per share and dividends per share (at $\alpha = 0.05$) than those which engaged in vertical transactions. The post-transaction level of profit performance of vertically transacting acquiring firms in terms of net sales had improved (at $\alpha = 0.05$) more than did the post-transaction level of profit performance of conglomerate acquiring firms. These results indicate that amongst Taiwanese enterprises horizontal post-transaction performance is much better than for transactions of other types. The results were similar to those found in previous empirical studies in Taiwan (Fang, 1990[42]; Yang, 1996[43]).

Fang (1990) concludes that technology and market distribution are easier to exploit in horizontal transactions than in transactions of other types amongst Taiwanese enterprises. If firms have the funds to acquire another company, they may wish to acquire one from within the same industry because managers are more familiar with the production processes and distribution channels within their own industry and this may influence their post transaction performance. Firms engaged in a horizontal transaction may produce the same products or offer the same services. Firstly, it is easier for such firms to increase their sales or enlarge their services, to take advantage of economies of scale and to grab greater market share or market power than would be the case with conglomerate and vertical transactions. Secondly, the horizontal transaction firm's management are familiar with the same products, distribution channels, production techniques and organisational characteristics. These managers are more likely to be able to exploit these advantages to improve their firms' levels of profit and profit rates than are the management of other transactions' firms. So it is reasonable that horizontal transactions by acquiring firms result in greater net sales, gross profits and operating incomes and achieve higher earnings per share and dividends per share than do conglomerate and vertical transactions.

Table 7-6-2 also shows the Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) of the differences in the post-transaction level of profit and profit rate performance between acquiring firms involved in different types of transaction. The results of the U-test were similar to the results of the T-test.

7.7 MOTIVES FOR MERGERS AND ACQUISITIONS AND THE POST-TRANSACTION PERFORMANCE OF ACQUIRING ENTERPRISES

Spearman's rank correlation coefficients between the importance of different motives for mergers and acquisitions and the post-transaction level of profit and profit rate of the acquiring enterprises are presented in Table 7-7-1.

In general, there was a significantly positive Spearman's rank correlation coefficient (at $\alpha = 0.05$) between the merger and acquisition performance of acquiring enterprises after the transaction and the importance of the motives of economies of scale, control of distribution channels, reducing administrative expense, acquisition of know-how or research and development, enhancement of market competitiveness, rapid entry into new markets or industries, increased market power and improvements to purchasing management efficiency. This result indicated that the better the merger and acquisition performance of acquiring enterprises after the transaction, the more important were the above mentioned merger motives, or vice versa. That is the more important the motivational emphasis on increased levels of profits or profit rate (reductions in cost or increases in revenue) the greater was post-transaction performance of the acquiring firm. These results were similar to a previous empirical study in Taiwan (Lin, 1990).[44]

We found that the above mentioned significantly important motives were mostly associated with operational and market factors. The aims of such transactions were chiefly to reduce expenses, increase sales, control distribution channels, acquire know-how, enhance market competitiveness and enlarge market power. These motives were aimed at improving operating performance, augmenting sales and

profits and further increasing earnings per share, dividends per share or returns on total assets. It is likely that if acquiring firms are driven by these concerns, they will enjoy better performance after the transaction than those which are not thus motivated.

There was a significantly positive correlation (at $\alpha = 0.05$) between the wish to acquire a brand marks, patents or copyright technologies and to apply for a listing on the stock market and a perceived increase in net sales, earnings per share, price/earning ratios and returns on total assets of acquiring enterprises after the transaction. This indicates that acquiring a good brand or patent will significantly increase an acquiring firm's net sales and further affect its earnings per share, price/earning ratio and returns on total assets after the transaction. Applying for a listing on the stock market is an important motive for Taiwanese enterprises pursuit of merger and take-over. Such a listing can improve a firm's image and upgrade its public reputation. It becomes much easier to get debt financing and to qualify for cheaper borrowing rates. This will significantly increase the firm's sales, profits and income and result in better earnings per share, price/earning ratios and returns on total assets after the transaction.

The importance of the motive to improve production and purchasing management efficiency significantly (at $\alpha = 0.05$) affects the acquiring firm's gross profits, operating income, net income, earnings per share, dividends per share, price/earning ratio and returns on total assets. Improvements in production techniques and purchasing efficiency significantly decrease the merged firm's expenses, and this results in improved income, earnings and returns.

The importance of the motives of financial synergy (solving financial difficulties and increasing debt capacity), tax advantages (tax considerations and government encouragement), and cash flow (exploiting surplus funds, buying below replacement costs, and gaining potential real estate or other related values) seem to have an insignificant correlation with the post-transaction profit performances of acquiring

enterprises. Higgins and Schall (1975)[45] found that the coinsurance effect of debt merely benefits creditors at the expense of shareholders. If the total debt is permitted to increase, a merger may expand the debt capacity of the combined firm as Lewellen (1971)[46] concludes. This, however, does not suggest that shareholder wealth will increase. Galai and Masulis (1976)[47] also argue that the bondholders receive more protection than do the stockholders of each firm because the latter have to back the debt claims of the former for both companies. Even though the merged firm may improve financing difficulties and further reduce the risks and costs of default or bankruptcy, the gains from the low rate will be offset by the loss attached to guaranteeing each other's debt. The results prove that the motives of improving financial solvency and increasing debt capacity do not produce significant benefits to acquiring enterprises.

Chapter 5 explores how tax considerations are an important merger motive in Taiwan. However, this only applied to a few companies and could not be verified for the majority. Table 5-2-3 also shows that the amount of tax exemption (Business Income Tax, Stamp Tax and Deed Tax) was small in comparison with the sums involved in the merger or take-over in Taiwanese enterprises. The Land Value Increment Tax is large but this is just a deferred tax which still falls due for payment by the acquiring enterprise when the land is further transferred. These data verify that tax considerations are very important for only a few companies and that the amounts are not great. The other reason for tax considerations may be that in the USA the losses of one firm in the combined company can be used to offset the profits of another so as to decrease the total amount of taxation that has to be paid. In Taiwan, losses can only be offset against the future profits of the same (acquiring) company. The effects of tax are thus significantly lessened.

The importance of the motives "exploiting surplus funds", "buying below replacement cost", and gaining the value of potential real estate are not significantly correlated with the post-transaction profit performances of acquiring enterprises. There are two possible reasons why. First, Roll (1986)[48] points out that if there are no

gains from the acquisition, hubris may account for why managers do not abandon it nor reflect on why their bids' valuation is wrong. The managers of acquiring firms using cash flow for acquisition purposes commit an error of over-optimism in assessing the merger opportunity. Second, Jensen and Meckling (1976)[49] consider that a problem with the separation of ownership and control arises when managers possess only a very small portion of the ownership shares of the firm; thus, the managers' aims may differ from those of the shareholders. Marris (1968)[50] considers that managers pursue growth to satisfy their power, dominance and prestige. Baumol (1959)[51] argues that a manager's salary and security does not depend on profits, but on the growth of the firm. A wrong assessment or a different motive may lead to the managers of the acquiring firm using free cash flow to acquire another company although this choice may not be the optimal or best investment selection, and may thus result in a normal post-transaction profit performance.

The Pearson product-moment correlation coefficients between the importance of different motives for mergers and acquisitions and the post-transaction performances of acquiring enterprises, are also presented in Appendices 7-7-1 to 7-7-8. The results indicate that they are similar to the Spearman's rank correlation.

7.8 THE CORRELATION BETWEEN THE PRE-TRANSACTION PERFORMANCE OF THE ACQUIRING ENTERPRISE RELATIVE TO THAT OF THE ACQUIRED ENTERPRISE, AND THE POST-TRANSACTION PERFORMANCE OF THE ACQUIRING ENTERPRISE

The pre-transaction level of profit and profit rate performance of acquiring enterprises relative to those of acquired enterprises is presented in Table 7-8-1. The average values ranged from 1.966 to 2.185 and from 2.243 to 2.300 respectively. This suggests that the pre-transaction performance of acquiring firms is superior to that of acquired firms in our sample. If we further review the detailed data of the respondents, we find that 66-73% and 58-64% of the acquiring firms claimed that their pre-transaction levels of profit and profit rate performances were superior, or

very superior, to those of the acquired enterprises. About 15-20% and 20-28% of the acquiring firms indicated that their pre-transaction levels of profit and profit rate performances were the same as those of the acquired enterprises. In addition, 11-14% and 14-16% of the acquiring firms indicated that their pre-transaction levels of profit and profit rate performances were inferior or very inferior to those of the acquired enterprises.

Article 75 of Company Law states "A continuing company or a new company created by merger or consolidation shall succeed to all the rights, powers and privileges of the merged or consolidated company". The Inland Revenue Service recognises that after the transaction the continuing company can cover its net losses for the preceding five years but it cannot absorb the net losses of the merged or consolidated company for the preceding five years.[52] Some companies utilising this net losses regulation, nominate the net losses company as the continuing firm and the net incomes company as the merged firm, so as to take advantage of the tax deduction. Soon after the transaction is completed, the acquiring firm (originally the net losses company) applies to change the company name to the acquired firm's name (originally the net incomes company) so as to trade with the better and/or more famous company name. The Inland Revenue Service knows of this manoeuvre but does not want to change its regulations. It is afraid of losing revenue if the net incomes company should always try to acquire a net losses company to exploit the tax deduction advantage. This accounts why 11-14% and 14-16% of acquiring firms' pre-transaction levels of profit and profit rate performances are inferior or very inferior to those of acquired enterprises.

Spearman's rank correlation coefficients between the pre-transaction level of profit and profit rate performance of acquiring enterprises relative to those of acquired enterprises and the post-transaction increase in levels of profit (net sales, gross profits, operating income and net income) and profit rates (earnings and dividends per share, price/earning ratios, and returns on total assets) of acquiring enterprises are shown in Tables 7-8-2 to 7-8-9. In general there is a positive correlation between the

pre-transaction performance of acquiring enterprises relative to acquired enterprises and post-transaction performances except for the returns on total assets of the acquiring enterprises. However this is statistically significant in only a few cases. This indicates that when acquiring enterprises have superior pre-transaction performance compared with the acquired enterprises, acquiring firms perform better after the transaction.

There is a significant positive rank correlation between the pre-transaction dividends per share of acquiring enterprises relative to those of acquired enterprises and the post-transaction net sales, dividends per share (at $\alpha = 0.05$), net income, and earnings per share (at $\alpha = 0.10$) performance of acquiring enterprises (Tables 7-8-2, 7-8-7, 7-8-5 and 7-8-6). If an acquiring firm has a superior dividends per share relative to an acquired enterprise, it probably indicates that the operating performance of the acquiring firm is much better than its target, so the former can distribute more dividends to its shareholders. After the transaction, the managers of the acquiring firm can apply their managerial skills to the acquired firm to take advantage of operating or financial synergy to increase sales and decrease costs. They can exploit the transaction to get tax reductions[53] (accelerated depreciation) and tax credits (the combined firm can absorb the acquiring firm's net operating loss backwards for up to five years) to reduce expenses or to gain from the disposal of the duplicated fixed assets of the acquiring or acquired firm. It is highly likely that the acquiring firm can increase its sales and income and then offer superior earnings per share and dividends per share to their shareholders after the transaction.

The rank correlation is significant (but only at $\alpha = 0.10$) between the pre-transaction net sales of acquiring enterprises relative to acquired enterprises and the post-transaction net sales, operating incomes, net incomes and dividends per share performance of acquiring enterprises. If the acquiring firm has superior net sales relative to the acquired enterprise, the acquiring firm is usually larger or has a better operating performance than the acquired firm. According to efficiency theories, the managers of the acquiring firm will deploy their superior management ability to

improve the operating performance of the acquired firm and to utilise the merger's advantages after the transaction. If combined firms can increase their post-transaction net sales, it is reasonable to expect that they would also have better operating incomes, net incomes and dividends per share.

7.9 THE TRANSACTION PROCESS PROBLEMS OF ACQUIRING ENTERPRISES

Table 7-9-1 indicates that the transactional process problem average values were from 1.256 to 1.822. This suggests that the transactional problems of the sample acquiring firms varied from "not at all serious" to "a little serious". The least serious problems were litigation and raising finance, while "a little serious" problem was asset valuation.

In 85.7% of the sample cases acquiring and acquired firms belonged to the same business group while 14.3% did not (see Table 3-4-1). This may explain the finding that the issues of litigation and of raising finance were not serious. Where acquiring and acquired firms belong to the same business group, they will share major shareholders. So when they merge, the combined firm encounters the least serious difficulties in raising finance, and any lawsuit problems are minimal.

Asset valuation was the greatest transaction process problem for acquiring firms in Taiwanese mergers and acquisitions. This result is consistent with Lin's (1990)[54] finding. Determining a firm's value is not easy. The value of a firm depends not only upon its cash flow amounts, but also upon the operating and financial characteristics of the acquiring firm. As a result, no single value exists for a firm. The final price is negotiated by the two companies. Table 6-8-1 indicates that 70.7% of the sample acquiring firms mainly used book value to estimate the value of their acquired firms. 15.3% chiefly used replacement cost value to estimate the value of acquired firms. In only 3.3% of the sample did acquiring firms mainly use stock market value to estimate the value. The high percentage (85.7%) of transactions within the same

business group together with the very small number (17 cases) of companies listed on the securities exchange may explain why so many companies used the book value estimation method and so few used the stock market value estimation method. If the acquiring and acquired firm belong to the same business group, their main shareholders are the same. The book value estimation method is simple and easy to use within a business group. There were only 199 firms listed on the Taiwanese stock market in 1990, and 347 in 1995. As most acquiring and acquired firms are not listed, they cannot avail themselves of the stock market estimation method.

The differences in post-transaction levels of profit and profit rate performance between acquiring firms which met with transaction process problems and those which did not are presented in Table 7-9-2. As shown in Table 7-9-2, the results of the Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) indicate that if acquiring firms did not have asset valuation problems, or such problems were just a "little serious" during the transaction process, they enjoyed significantly better post-transaction dividends per share (at $\alpha = 0.05$) than those of acquiring firms which had a "serious", "fairly serious" or "very serious" asset valuation problem. The results are consistent with overestimation of acquired firms' asset values which significantly increase an acquiring firm's expenditure, decrease its earnings and then further affecting its shareholders' dividends per share after the transaction.

Contingent loss and personnel arrangements problems are important (at $\alpha = 0.05$) factors affecting the post-transaction earnings per share, dividends per share and returns on total assets of acquiring firms. The results indicate that if an acquiring firm has serious or very serious contingent loss problems during the transaction process, the loss costs the acquiring firm dearly, deeply damages the company's earnings and further reduces its earnings per share, dividends per share and returns on total assets after the transaction. Personnel arrangements pose a considerable difficulty to Taiwanese mergers and acquisitions. If an acquiring firm cannot appropriately deploy its personnel, this may significantly damage employee or managers' morale, undermine personal or departmental communication or co-operation, lessen the

company's operating efficiency and finally result in a drop in the firm's earnings per share, dividends per share and returns on total assets.

If acquiring firms encounter none or few problems with litigation, raising finance, or meeting government regulations during the transaction process, they have significantly (at $\alpha = 0.05$) better post-transaction net sales than acquiring firms which report "serious", "fairly serious" or "very serious" difficulties in these areas. The result indicates that litigation problems significantly influence an acquiring firm's ability to manage its affairs, and to operate efficiency without distraction or tarnishing its reputation, all of which may affect its net sales.

The problem of raising finance is consistent with the argument that if an acquiring firm has a serious problem in this respect, it needs to present its plans to its shareholders, bank or money market to obtain the finance and explain why the proposed transaction might improve its operating performance and increase its profits. If the acquiring firm can raise the finance from the shareholders, bank or money market, this indicates that all the parties believe in the reliability and profitability of this transaction. These careful preparations and considerations mean that the acquiring firm has a better chance of achieving its goal and of improving its post-transaction net sales.

The government regulation problem may refer to three issues. First, there is the question of tax exemption or deferment. If "a company is specially approved by the Ministry of Economic Affairs to go into merger or consolidation for the purpose of promoting reasonable operation and management", it is exempt from all income tax, stamp tax and deed tax as a result of such a merger or consolidation and may defer the land-value increment tax which is charged to the account of the enterprise surviving after the merger or consolidation.[55] Second, there is the issue of applications for a listing on the stock market. A few companies merge or take-over another company so as to apply for a listing on the stock market. Owing to the prosperity of the economy and increases in individual incomes, the stock market was

booming from 1988. The government imposed qualifying requirements for companies, especially ones which had good operating profits in their most recent year and ones which had capital in excess of NT$ 200,000,000.[56] Finally, there is the question of accelerated depreciation and tax credit. "To meet the requirement for industrial upgrading, the service life of instruments and equipment for exclusive use for research and development purposes and/or inspection of pilot products, or machinery and equipment used for energy saving purposes or as alternate energy sources may be accelerated by two years"; "Based on the requirements for adjusting industrial structure and improving the scale of operations and methods of production, depreciation of the machinery and equipment of specially designated industries may be accelerated by half the number of years of the service life of fixed assets as prescribed in the Income Tax Law". "A company may credit 5% to 20% funds disbursed for any of the following purposes against the amount of profit-seeking enterprise income tax payable for the current year .... 1. The funds invested in equipment for automation of production or production technology; 2. The funds invested in equipment or technology used for reclamation of resources and/or pollution control; 3. The funds used in research and development, professional personnel training and creation of internationally acceptable brand(s) of product(s); 4. The funds used for the equipment or technology required for energy saving and reuses of industrial water. The total amount of investment credit against tax in each ensuing year as referred to in the preceding paragraph shall be limited to a level not in excess of 50% of the amount of profit-seeking enterprise income tax payable in the current year provided, however, that this limitation shall not apply to the investment credit to be made in the year prior."[57]

Table 7-9-3 shows that there are about forty-three acquiring firms which encountered a "serious", "fairly serious" or "very serious" government regulation problem during the transaction process, i.e. about 18% of the sample. A few companies apply so as to qualify for the above mentioned tax benefits but have many disagreements with the authorised government official. The government is involved in "promoting reasonable operation and management", "having good operating profit" or "to meet

the requirement for industrial upgrading". If acquiring firms apply to enjoy the tax or listing advantages and have problems conforming to these regulations, then this indicates that the acquiring firms have better operations and managements. So when acquiring firms have a serious or very serious government regulation problem during the transaction process, they may still enjoy better post-transaction net sales than those which met with none or few difficulties of this kind.

The differences in post-transaction performance between acquiring firms whose shareholders were resistant to the bidding during the transaction process and those whose were not are not significant, so we cannot generalise for the population. Table 7-9-4 shows that there were only 2.1%, 2.1% and 4.9% of the sample of acquiring firms in which a "very serious", "fairly serious" and "serious" problem manifested itself over shareholders' hostility during the transaction process. These small percentages are associated with the high percentage of transactions which were within the same business group. If shareholders do not agree to a transaction, acquiring firms hold a shareholders' meeting attended by shareholders holding and representing at least two-thirds of the total number of issued and outstanding shares; at this meeting, a majority of the votes held by the shareholders present is cast in favour of the resolution.[58] If a few shareholders still object, they may request the company to redeem all their shares at a current fair price.[59] The acquiring firms can redeem all shares held by opposing shareholders at a current fair price so this problem does not greatly affect post-transaction performance.

The T-tests of the differences in post-transaction performance between acquiring firms which were involved in different transaction problems during the transaction process are shown in Appendices 7-9-1 to 7-9-11. The results of the T-test were similar to the results of the U-test.

7.10 CONCLUSION

In general the post-transaction performances of acquiring firms are superior to their pre-transaction performances. On average, medium and large acquiring enterprises gain greater improvements after the transaction than do small and small-medium acquiring enterprises. If firms do not belong to the same business group, the acquiring firm achieves a better performance after the transaction than does one which belongs to the same business group.

Acquiring firms transacting horizontally have significantly better post-transaction performance in terms of net sales, gross profits, operating incomes, earnings per share and dividends per share than do conglomerate transactions. Acquiring firms transacting horizontally also have significantly better post-transaction improvement in earnings per share, dividends per share and price/earning ratios than do firms transacting vertically. Firms acquiring vertically have greater post-transaction performance of net sales than do firms engaging in diversifying transactions.

There was a significantly positive Spearman's rank correlation between the merger and acquisition performance of acquiring enterprises after the transaction and the importance of the motives of economies of scale, control of distribution channels, reducing administrative expense, acquiring know-how or research and development, enhancing market competitiveness, gaining rapid entry into new markets or industries, increased market power and improving purchasing management efficiency. This result indicates that the better the merger and acquisition performance of acquiring enterprises after the transaction the more important were the above mentioned merger motives and vice versa, i.e. the more important these merger motives, the better the merger and acquisition performance of the acquiring enterprises after the transaction.

When acquiring firms had superior net sales relative to acquired enterprises, the acquiring firms had better net sales, operating incomes, net incomes and dividends per share performance after the transaction. When acquiring firms had superior dividends per share relative to acquired enterprises, the acquiring firms enjoyed

better net sales, net incomes, earnings per share and dividends per share after the transaction.

Asset valuation was the greatest transaction process problem for acquiring firms in Taiwanese mergers and acquisitions. This result is consistent with Lin's (1990) finding. The findings indicate that if an acquiring firm has serious or very serious contingent loss problems during the transaction process, the loss costs the acquiring firm dearly, deeply damages the company's earnings and further reduces its earnings per share, dividends per share and returns on total assets after the transaction. Personnel arrangements pose a considerable difficulty to Taiwanese mergers and acquisitions. If an acquiring firm cannot appropriately deploy its personnel, this may significantly damage employee or managers' morale, undermine personal or departmental communication or co-operation, lessen the company's operating efficiency and finally result in a drop in the firm's earnings per share, dividends per share and returns on total assets.

The problem of raising finance is consistent with the argument that if an acquiring firm has a serious problem during the transaction process, it needs to present its plans to its shareholders, bank or money market to obtain the finance and explain why the proposed transaction might improve its operating performance and increase its profits. If the acquiring firm can raise the finance from the shareholders, bank or money market, this indicates that all the parties believe in the reliability and profitability of this transaction. These careful preparations and considerations mean that the acquiring firm has a better chance of achieving its goal and of improving its post-transaction net sales.

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CHAPTER 8

THE POST-TRANSACTION PERFORMANCE OF MERGERS AND ACQUISITIONS--MULTIVARIATE ANALYSIS

8.1 INTRODUCTION

Why do some firms enjoy a superior post-transaction performance and others an inferior one? Can we identify some variables to predict which firms will perform better or worse in Taiwan following a merger or acquisition? A variety of multivariate statistical methods can be used to predict a dichotomous dependent variable from many independent variables. In this chapter we use the logistic regression model to predict an event (i.e. superior post-transaction performance) as occurring or not.

In the next section we describe the methodology and hypotheses of how to predict whether or not a transaction will result in superior post-transaction levels of profit and profit rate performances in Taiwanese enterprises' mergers and acquisitions. Several different logistic regression algorithms for variable selection, together with their results, are compared in the third section. Finally, a brief conclusion is presented.

8.2 METHODOLOGY AND HYPOTHESES OF POST-TRANSACTION PERFORMANCE

In simple regression analysis, we can test whether two variables are linearly related and calculate the strength of the linear relationship. The equation of the probabilistic simple regression model is

$Y = \beta_0 + \beta_1 X + \varepsilon$

Where:

Y = the value of the dependent variable,

β_0 = the population Y intercept,

β_1 = the population slope,

X = a given value of independent variable, and

ε = the error of prediction.

The assumptions of simple regression analysis are as follows:

1. The model is linear.
2. The expectation of error terms (ε_i) is zero. $E(\varepsilon_i) = 0$ for all i.
3. The error terms have constant variances. $V(\varepsilon_i) = \sigma^2$ for all i.
4. The error terms are independent. $E(\varepsilon_i\varepsilon_j) = 0$ for all $i \neq j$.
5. The error terms are normally distributed.

We can extend this model to the multiple regression case such that the general equation for the probabilistic multiple regression model is

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + ... + \beta_kX_k + \varepsilon$$

Where:

Y = the value of the dependent variable

β_0 = the regression constant

β_1 = the partial regression coefficient for independent variable 1

β_2 = the partial regression coefficient for independent variable 2

β_3 = the partial regression coefficient for independent variable 3

β_k = the partial regression coefficient for independent variable k

k = the number of independent variables

ε = the error of prediction.

In multiple regression analysis, the dependent variable, Y, is the response variable. The partial regression coefficient of an independent variable, β_i, represents the

change in Y associated with a one-unit increase in X if all other variables are held constant.

In reality, the population values of the regression constant and the partial regression coefficients of a multiple regression model are unknown. Normally we use a sample to estimate the population value. The form of the equation for estimating Y with sample information is:

$y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + ... + b_kX_k$

Where:

y = the predicted value of Y

b_0 = estimate of regression constant

b_1 = estimate of regression coefficient 1

b_2 = estimate of regression coefficient 2

b_3 = estimate of regression coefficient 3

b_k = estimate of regression coefficient k

k = the number of independent variables.

In multiple regression, the dependent variable must be of a metric nature. In this study, the dependent variable is measured in binary, non-metric, terms. Discriminant analysis is also applicable when the dependent variable is nonmetric. But logit analysis (or logistic regression) may be more suitable for the study. The reason for this is that discriminant analysis relies on the population values of x values fulfilling the assumptions of multivariate normality and equal variance-covariance matrices across groups, features which are not found in all our data. Logit analysis does not need these strict assumptions, so it is a more suitable tool for our study.

This study applies the logistic regression model to identify the relationship between a firm's characteristics and its post-transaction performance in Taiwanese mergers and acquisitions from 1990 to 1995. The posterior probability of an event occurring, in this case that the acquiring firms will enjoy a superior post-transaction performance, is modelled as

$$\text{Prob(event)}_i = e^{Zi} / (1+ e^{Zi}) \text{ or } \text{Prob(event)}_i = 1 / (1+ e^{-Zi})$$

Where $Z_i = B_0 + B_1X_{1i} + B_2X_{2i} + ... + B_PX_{Pi} + E_i$.

This implies that

$$\text{Logit}(Y) = \ln\{\text{Prob(event)} / [1 - \text{Prob(event)}]\} = B_0 + B_1X_{1i} + B_2X_{2i} + ... + B_PX_{Pi} + E_i$$

$B_0, B_1, ..., B_P$ are coefficients estimated from the questionnaire data, $X_{1i}, X_{2i}, ..., X_{Pi}$ are the values of each variable for case i, E_i is the error for case i, and e is the base of the natural logarithms.

A popular methodology in recent years has been to conduct empirical studies that assess the effect of acquisition on share prices. In Taiwanese enterprises there were only 17 transactions involving listed companies over the period 1990 to 1995. This is too small a sample to generalise about the effects of mergers and acquisitions on share prices in Taiwan, so we are using questionnaire data to explore the post-transaction performance of Taiwanese enterprises. The questionnaires were mailed to the acquiring firms from May to June in 1996 as detailed in Chapter 2. The questionnaire asked the enterprises that merged or acquired between 1990 to 1995 to assess their post-transaction performance. There were 245 usable respondent cases. The period of assessment of post-transaction performances related to acquisitions ranged between those that had occurred between five months and five years previously.

The questionnaire included the question : "How would you rate the post-transaction performance of your company as a whole, compared with its performance before the transaction?". We chose two groups of variables to gauge firm's performance. The first group referred to levels of profit performance which included net sales, gross profits, operation income and net income. The second group referred to profit rate

performances which included earnings per share, dividends per share, price/earning ratio and returns on total assets. The respondent could choose "1", "2", "3", "4", or "5" to correspond with "Very superior", "Superior", "Same", "Inferior", or "Very inferior" respectively. To apply logistic regression analysis to identify which variables could be used to predict that a firm will have a superior post-transaction performance we then divided the responses into two groups. The first group consisted of responses numbered "1" or "2" and the second of responses "3", "4" or "5". This meant that managers ticking the first group of responses believed that their firm's post-transaction performance exceeded its pre-transaction level while those ticking the second group considered that their firm's post-transaction performance was the same as, or inferior to, its pre-transaction level.

Statistical inference in logistic regression analysis mainly depends on the asymptotic properties of the sample statistics. This means that when the sample size increases toward infinity, the asymptotic property will obtain. To get valid statistics for these asymptotic properties, we merged the cell size where the cell sample size was less than 5 in Table 6-5-1. There are only two, zero and four cases respectively using corporate bonds, preferred stock and convertible bonds as the main method of payment in their transactions. So we merged these three payment methods into the "other payment methods" category. The above categorisation leads to the identification of different potential variables of the probability that an acquiring firm will reach superior post-transaction levels of profit or profit rate. The hypotheses, and the variables that they imply, are summarised in Table 8-2-1. The sign ascribed to each variable indicates whether the probability of a superior post-transaction profit performance is expected to increase (+) or decrease (-) as that variable increases.

8.3 THE RESULTS OF THE LOGISTIC REGRESSION ANALYSIS OF POST-TRANSACTION PROFITS PERFORMANCE

In logistic regression, we try to identify independent variables that can act as significant predictors of superior post-transaction levels of profit or profit rate. To

achieve this we have used various stepwise routines. Various stepwise algorithms are available but none of them result in a "best" model in any statistical operation[1] because different samples and variables may fit different models. We examine several possible models provided by SPSS LOGISTIC REGRESSION ANALYSIS software and choose from them on the basis of interpretability and parsimony.

Tables 8-3-1 and 8-3-2 compare the overall results for (a) the eight measures of profit performance, and (b) the six methods of selecting the independent variables. The six different stepwise algorithms for variable selection are compared. The significance of the model's Chi-Squire[2], the correct classification percentage and the number of variables in the equation are presented in Table 8-3-1 and Table 8-3-2. The level of significance of the Chi-Square for all six models is 0.000. This indicates that we can reject the null hypothesis that the coefficients for all the terms in the logistic regression model, except the constant, are zero. This result implies that information contained in the independent variables allows us to predict the value of the dependent variable (i.e. relative probability of a superior post-transaction performance) better than we could without the independent variables.

Table 8-3-1 shows that the forced entry method is the basic model which retains all the fifty-four independent variables (excluding the constant) in the equation; the proportion of cases correctly classified range from 84.26% to 86.29%. In the case of the three forward stepwise routines, removal testing is based on the probability of the likelihood-ratio statistic based on conditional parameter estimates (Conditional); on the probability of the likelihood-ratio statistic based on the maximum-likelihood estimates (LR); and on the probability of the Wald statistic (Wald). In all three cases, the probability for entry is 0.05 and for removal is 0.10. In all three cases only three or four variables (excluding the constant) are included in the equation and the proportion of cases correctly classified ranges from 71.07% to 75.63%. In the case of the backward Wald stepwise selection routine, the probability for entry stepwise is 0.05 and for removal stepwise is 0.10. This resulted in 19 to 25 variables (excluding the constant) being included in the equation, and the proportion of cases correctly

classified ranged from 79.70% to 84.26%. To avert a failure to find a relationship when one exists, and to find an appropriate model, we relax the level of statistical significance from 0.05 to 0.10, i.e. the probability of entering stepwise is 0.10 and of removal stepwise is still 0.10. The relaxed statistical significance criterion of this forward Wald stepwise selection includes six to 13 variables (excluding the constant) in the equation, and the proportion of cases correctly classified ranges from 75.63% to 78.17%.

Table 8-3-2 shows when the forced entry method of profit rate measures is used and all of the 54 independent variables (excluding the constant) are in the equation, the proportion of cases correctly classified ranges from 82.29% to 87.31%. In the case of the three forward stepwise routines, the probability of entry is 0.05 and of removal is 0.10. There were between one and eight variables (excluding the constant) included in the equation, and the proportion of cases correctly classified ranges from 70.77% to 76.14%. In the case of the backward Wald stepwise selection routine, the probability of entry stepwise is 0.05 and of removal stepwise is 0.10. This resulted in 15 to 18 variables (excluding the constant) being included in the equation, and the proportion of cases correctly classified ranges from 75.52% to 80.71%. Again, to avert a failure to find a relationship when one exists, and to find the appropriate model, we relax the level of statistical significance from 0.05 to 0.10, i.e. the probability of entering stepwise is 0.10 and of removal stepwise is still 0.10. The relaxed statistical significance criterion of the forward Wald stepwise selection includes four to 10 variables (excluding the constant) in the equation, and the proportion of cases correctly classified ranges from 71.28% to 76.14%.

The forced entry model correctly predicts the highest percentage of cases (82.29% to 87.31%) but it includes all the variables in the equation. The forward Wald method, where the probability of entering stepwise is 0.05 and of removal stepwise is 0.10, yields good predictive efficiency (70.77% to 76.14%) in very few variables. Although backward elimination poses less risk of failing to find a relationship when one exists, nevertheless the backward Wald method, where the probability of entering stepwise is

0.05 and of removal stepwise is 0.10, includes too many variables in the equation. The forward Wald method, where the probability of entering stepwise is 0.10 and of removal stepwise is 0.10, includes a few more variables in the equation, and achieves a small improvement of predictive efficiency (71.28% to 78.17%) compared to the forward Wald method, where the probability of entering stepwise is 0.05 and of removal stepwise is 0.10.

If our objective is to maximise the percentage correctly classified, the best routine is the forced entry method. If our objective is to understand what causes superior or inferior post-transaction performance, the best model is that which combines low collinearity with highest Model Chi-Square (χ^2) for, the difference between Initial Log Likelihood (-2 Log Likelihood[3]) and the model yielding the lowest -2 Log Likelihood[4]. Considering this, this study aims to develop a purely predictive empirical model, to identify a model which includes a set of predictors that provide a greater percentage that is correctly classified, and that can reveal what is causing superior or inferior post-transaction performance in Taiwanese enterprises' mergers and acquisitions. Thus, we choose the forward Wald method, where the probability of entering stepwise is 0.10 and of removal stepwise is 0.10, as our selection criteria.

There are 54 independent variables (excluding the constant) in the initial logistic regression model. The results detail the estimated coefficients, the standard error, the Wald statistic, the significance level for the Wald statistic and the partial correlation. A positive sign on a coefficient indicates that an increase in the independent variable is associated with an increase in logit(Y) and a negative sign the opposite.

The contribution of individual variables in logistic regression is difficult to determine. Each variable's contribution depends on the other variables in the model, especially if the independent variables are highly correlated. We could consider the partial correlation between the dependent variable and each of the independent variables. The value of a partial correlation coefficient can range from -1 to +1.

The relationships between the acquiring firm's post-transaction performance and the independent variables are presented in Tables 8-3-3 to 8-3-10. The chi-squares statistics are all statistically significant. This indicates that we can reject the null hypothesis that the coefficients for all of the terms collectively in the logistic regression model, except the constant, are zero. This result indicates that information about the independent variables allows us to make better predictions of the dependent variable (i.e. superior post-transaction levels of profit and profit rate performances) than we could make without the independent variables.

The predictive performance of the eight logistic regression models which correctly classify high proportions of the cases are presented in Tables 8-3-11 and 8-3-12. These proportions range from 71.28% to 78.17%, using the forward Wald method, with a probability of entering stepwise of 0.10 and of removal stepwise of 0.10. These compare with the proportions which could be expected to be correctly classified by chance from 51.76% to 58.88%[5]. This indicates that the logistic regression models have hugely improved our ability to identify the correct classifications.

The variable control of distribution channels is significant for profit levels (gross profits, operating incomes and net incomes) and profit rates (earnings per share, dividends per share, price/earning ratios and returns on total assets), indicating that the more control of distribution channels drives the motive to merge, the more likely it is that the acquiring firm will enjoy an improved post-transaction performance (see Tables 8-3-4 to 8-3-10). Thus, controlling distribution channels emerges as a very important merger motive in Taiwanese enterprises. When the acquiring firm shares its distribution channels with the target or increases them as an outcome of the merger, it can share the acquired firm's original distributors and customers to increase its net sales, get more quantity discounts from its suppliers, reduce any duplicate personnel, offices, equipment and inventory to decrease its costs and expenses after the transaction. Therefore, it is more likely to increase the acquiring firm's incomes, earnings and returns after the transaction. Alternatively greater control of distribution

by acquiring customers enhances profit rates perhaps by increasing demand for its products.

The more important the merger motive of reducing administration expenses, the more likely it is that the acquiring firm's post-transaction performance improves in terms of net sales, gross profits, operating incomes, and earnings per share (see Tables 8-3-3 to 8-3-5 and Table 8-3-7). This indicates that reducing administrative costs can not only effectively downsize the combined company by decreasing duplicate or inefficient employees, office space and equipment, but can also increase the flexibility and adaptability of the organisation and improve personnel morale and performance, and so increase the firm's sales, income and earnings.

As shown in Table 8-3-6, economies of scale are statistically significant and display the expected signs. This indicates that (1) the average cost of producing a commodity decreases as its output is increased; the product can be offered at a more competitive prices; (2) large firms is likely to be accomplished arranging for the specialisation of labour or equipment which can increase productivity; (3) large firms being able to afford the overhead of research and development which may improve the quality of established products or innovate with new ones; (4) large firms gains quantity discounts from their suppliers; (5) in the case of financial synergy, large enterprises having better goodwill and credit so they find it relatively easy to raise funds, to increase their debt capacity, and even to acquire lower rates from banks or the money market. The more important is the motive of economies of scale (that is, the smaller the coefficient) the more likely it is that the net income post-transaction performance of the acquiring firm surpasses its pre-transaction level.

Table 8-3-3 shows that the variable representing the motive of rapid entry into new markets or industries is statistically significant, and displays the expected sign. Thus if a firm merges to rapidly enter a new market perhaps aiming to enter a high profit industry then its net sales increase. It may choose merger because it lacks the know-how to develop new products or does not have appropriate distribution channels to

access different market. Through the merger, the acquiring firm can better deploy its production technology and its important distribution channels and this is likely to increase the acquiring firm's net sales performance after the transaction.

The more important is the merger motive of increased market power the more likely it is that the acquiring firm will enjoy superior net sales, gross profits, and price/earning ratio performance after the transaction (see Tables 8-3-3, 8-3-4 and 8-3-9). A firm can increase its market share after a horizontal merger. Increasing market share means increasing the size of the firm relative to other firms in an industry. This result indicates that the combined firm can exercise its influence over the price and output in a particular market. Samuels et al. (1994)[6] mention that the higher the level of concentration in an industry, the greater are the levels of profit. If a firm can dictate the conditions of the sale of its product, has the ability to act as a price leader, can deter other firms' entry, or is able to make persistently super-normal profits, then it is highly likely to increase its net sales, gross profits and its price/earning ratio performance after the transaction. The results are consistent with the conclusions of Singh and Montgomery (1987)[7] and Seth (1990)[8] who found that increased market power can earn super normal profits.

Table 8-3-5 shows that the coefficients of acquiring brand marks, patents or copyright technologies and of combining complementary resources are significant, but have positive signs which are contrary to the merger motive hypothesis. The positive sign of a merger motive implies that the less important the merger motive of acquiring brand marks, patents or copyright technologies and of combining complementary resources the more likely it is that the acquiring firm will achieve a superior post-transaction operating income performance and vice versa, i.e. as those particular motives become more relevant, the likelihood of improved post-transaction performance diminishes. The results indicate that when the acquiring firm wishes to exploit the brand marks, patents or copyright technologies of the acquired firm, it does not achieve its expected gains. Sales and administrative expenses and/or research and development costs may increase rather than decrease and so result in poorer

operating incomes. The same outcome may be experienced by the acquiring firm when its motive is to combine complementary resources but it cannot achieve its expected goal. This may result from an over-optimism in evaluating the merger's advantages and/or an overestimation of the value of the brand marks, patents or copyright technologies and of combining complementary resources. Roll (1986)[9] points out that if there are no gains in acquisition, hubris provides an explanation as to why managers do not abandon these acquisitions or reflect on why their bids' valuation is wrong. The managers of acquiring firms using cash flow for acquisition commit an over-optimistic error in assessing the merger opportunity due to excessive pride or hubris. Marris (1968)[10] considers that managers pursue growth to satisfy their power and prestige. Mueller (1969)[11] finds that managers' prestige and power are more closely related to the size and growth of the firm than to its profitability. Baumol (1959)[12] argues that a manager's salary and security does not depend on profits but on the growth of the firm. A flawed assessment or a conflicting purpose may lead to the managers of the acquiring firm using free cash flow to acquire another firm, which is not the optimal or best investment selection and so may result in inferior operating income performance after the transaction.

As shown in Tables 8-3-8 and 8-3-10, government encouragement or support is an important factor which can encourage companies to merge or consolidate (exempt from all income tax, stamp tax and deed tax and with a deferment of the land-value increment tax payable as a result of such merger or consolidation)[13]; to purchase new instruments, machinery and equipment (for exclusive use in research and development, energy saving, or to meet the requirements for adjusting the industrial structure and improving the scale of operations and methods of production which may be accelerated depreciation by two years or by one half of the number of years of the service life of the fixed assets)[14]; to backdate net operating losses (the combined firm can absorb the acquiring firm's net operating losses backward to five years)[15] and to apply for a listing on the stock market.[16] These government encouragements are more likely to decrease the acquiring firm's expenses, increase dividends per share and return on total assets after the transaction.

The coefficient of buying below replacement cost is significant but has a positive sign (see Tables 8-3-3 and 8-3-4) indicating that where the merger motive of buying below replacement cost is unimportant, superior post-transaction net sales and gross profits performance of the acquiring firm are more likely and vice versa, i.e. the more important the merger motive of buying below replacement cost, the less likely is improved post-transaction net sales and gross profits performance. The results indicate that managers may prefer to spend surplus cash flow on an unjustified merger, based on cheap replacement assets, rather than distribute the cash to the firm's shareholders, because they are motivated to increase the size of their firms (Mueller, 1969).[17] Jensen (1986)[18] observes that the difference of objective between shareholders and managers is an agency problem. In this situation, the managers are more likely to overestimate the merger's advantages and/or to underestimate its disadvantages. A merger motive which is not based on best or optimal investment selection criteria may result in poorer net sales and gross profits performance after the transaction.

The coefficient of control over material resources is significant but has a positive sign which is contrary to the merger motive hypothesis (see Tables 8-3-6, and 8-3-8 to 8-3-10). The positive sign of the merger motive is consistent with the argument that when the acquiring firm, through a vertical merger tries to control its material resources, the scale of purchases of materials may not result in economies of scale and the firm may suffer huge inventory losses and interest expenses instead. It may also imply that the merger fails due to a cultural clash between the two companies or that the operating performance of the acquired firm fails to reach the acquiring firm's original superior standard so it is more likely to decrease the acquiring firm's net income, earnings and returns after the transaction.

If an acquiring firm borrows cash from the bank as its main payment method for the acquisition, it is more likely to improve its operating income, net income and earnings per share after the transaction (see Tables 8-3-5 to 8-3-7). This result may imply that (1) The interest expenses are deductible from a company's earnings. (2) Following a

presentation of plans to the shareholders, bank or money market and their approval of the scheme, it is not only the acquiring firm's managers who believe in the transaction but the shareholders, bankers and financial institute investors also have faith in its reliability and profitability. These deductible interest expenses and deliberate preparations and considerations increase the chances that the acquiring firm will achieve its goal of better incomes and earnings per share after the transaction. The result is similar to the conclusions of Wansley et al. (1983)[19] who find that cash offers yield higher abnormal returns than do stock offers after the transaction. Myers and Majluf (1984)[20] consider that the method of financing an investment implies some information. When the acquiring firm uses debt to finance a new investment, it may imply that bidding managers consider their common stock to be undervalued and this can cause the returns to bidders to be positive.

The variable of "the other main payment methods" is statistically significant but has a negative sign which implies that when an acquiring firm uses, for example, corporate bonds or convertible bonds as the main method of payment, it decreases its chances of obtaining a better post-transaction operating income performance (see Table 8-3-5). This result implies that if the acquiring firm issues corporate bonds or convertible bonds to raise the finance to merge with another firm, the interest rate of the corporate bonds or the convertible premium (i.e. the exchange ratio of shares to bonds) is too high in advance. It will significantly increase the acquiring firm's interest expenses or repayments and so curtail the likelihood of superior post-transaction operating income performance.

As shown in Tables 8-3-7 and 8-3-8, replacement cost value is statistically significant and has a positive sign indicating that when the acquiring firm uses replacement cost value as the method of valuing the target firm, it increases the likelihood of higher earnings per share and dividends per share after the transaction. It may indicate that when the acquiring firm uses replacement cost value, i.e. assets are valued at their current cost instead of their historical cost, to value the acquired firm, the acquiring firm can benefit from the relatively high depreciation of the acquired firm's assets,

including its buildings, machinery and equipment, etc.. The acquiring firm can enlarge or upgrade the tax basis of the target firm's assets to their fair market value and take advantage of depreciation charges through this method. The expansion of the tax basis of the target's assets may release a greater cash flow and result in an increase in the acquiring firm's earnings per share and dividends per share after the transaction.

The variable prior net sales performance is statistically significant and has the expected sign (see Table 8-3-5), indicating that if the acquiring firm has a better net sales pre-transaction performance relative to that of the acquired firm, the more efficient managers of the acquiring firm will deploy their extra managerial resources to the acquired firm after the transaction, such that the acquired firm's operation performance will improve and the combined firm will yield a superior post-transaction operating income performance. The variable return on total assets is statistically significant but has a positive sign which is contrary to the pre-transaction performance hypothesis (see Table 8-3-5). This result indicates that if the acquiring firm has superior returns on its total assets before the transaction relative to the acquired firm but it cannot effectively integrate and utilise the two merging firms' resources (including employees, materials and equipment) then it may lessen the firm's productivity and generate more expenses. This will increase the likelihood of inferior operating incomes after the transaction.

The variable representing the existence of a customer drain problem is statistically significant and has the expected sign (see Table 8-3-5) indicating that if an acquiring firm does not have a serious customer drain problem in the transaction process or the problem is slight, then the firm does not need to spend heavily on advertising to promote its ideas, goods or services to keep its customers. It is more likely to increase the probability of an improved operating income performance after the transaction.

The coefficient of government regulation problems is significant but has the opposite sign to that expected (see Tables 8-3-3 and 8-3-5) indicating that if an acquiring firm meets a serious government regulation problem in the transaction process, this

increases the probability of the firm having a superior net sales and operating income post-transaction performance. This is consistent with the argument that if an acquiring firm needs to comply with government regulations to apply for a listing on the stock market[21], to enjoy a tax exemption or deferment[22] (merger or consolidation), to gain from accelerated depreciation[23] (instruments and equipment for exclusive use in research and development, or for energy saving purposes or as alternate energy sources, or to meet the requirements for adjusting the industrial structure and improving the scale of operations and methods of production) and to earn tax credit[24] (the combined firm can absorb the acquiring firm's net operating loss backward for up to five years), etc., and can finally conform with these regulations' requirements, it can then enjoy tax benefits or listing advantages. These changes, in turn, improve the firm's public image and reputation and are more likely to lead to better net sales and operating incomes after the transaction.

As shown in Tables 8-3-7 and 8-3-8, contingent loss is significant and has the expected sign indicating that if an acquiring firm does not meet with a serious contingent loss problem in the transaction process, then it is more likely to have better earnings per share and dividends per share in its post-transaction performance and vice versa, i.e. if an acquiring firm has a serious contingent loss problem in the transaction process, then it is more likely to have poorer earnings per share and dividends per share after the transaction. This result is similar to that found in our univariate analysis. It indicates that this hidden liability (contingent loss) is an important factor affecting the performance of the acquiring firm which may cost the bidder heavily after the acquisition. This is likely to influence the acquiring firm's shareholders' earnings and dividends after the transaction.

The variable personnel arrangements is significant and has the expected sign (see Tables 8-3-8 and 8-3-10) indicating that if an acquiring firm does not encounter a serious personnel problem in the transaction process, then it is more likely to enjoy better dividends per share and returns on total assets after the transaction and vice versa, i.e. if an acquiring firm becomes embroiled in a serious personnel problem in

the transaction process, it increases the probability of poorer dividends per share and returns on total assets after the transaction. The results indicate that personnel arrangements are an important issue in Taiwanese enterprises' mergers and acquisitions. Two different companies merging into one involves some personnel restructuring. If the acquiring firm cannot appropriately deploy its staff after the transaction, it may lower employees' morale, undermine personal or departmental communication and co-operation, lessen the firm's operating efficiency, and then reduce its dividends per share and returns on total assets.

The merger motives of solving financial difficulties, increasing corporate debt capacity or financing, risk diversification, tax considerations, and using mergers to mop up surplus funds and potential real estate etc. are insignificant as are the transaction process problems of goodwill valuation, shareholders being against the bidding, and corporate culture differences. This result is consistent with the univariate analysis presented in the previous Chapter. The variable of acquiring know-how or research and development does not significantly affect the acquiring firms' post-transaction performance, indicating that R & D is not the key factor in assessing a firm's profit performance, especially for small and medium sized Taiwanese enterprises.

8.4 CONCLUSION

A variety of multivariate statistical methods have been used to predict an event (i.e. improved post-transaction performance) as occurring or not. The estimated coefficients of the 54 independent variables are grouped in five clusters. Different algorithms for variable selection generate different models. This study tries to develop a purely predictive model, that is, to identify a model which includes a set of predictors that provides a greater percentage of correctly classified variables and reveals what is causing superior or inferior post-transaction performances in Taiwanese enterprises' mergers and acquisitions. For this reason, we have chosen the forward Wald method, the probability with a stepwise of 0.10 and of removal stepwise of 0.10, as our research method.

The relationship between the acquiring firm's post-transaction performance and all of the independent variables collectively, is statistically significant for all of them. This indicates that we reject the null hypothesis that the coefficients for the terms in the logistic regression model, except the constant, are jointly zero. This result implies that information about the independent variables allows us to make better predictions of the dependent variable (i.e. improved post-transaction performance) than we could make without knowing about the independent variables.

The eight logistic regression models correctly classify high proportions of the observed outcomes, with such proportions varying from 71.28% to 78.17%. The variables of control of distribution channels, reducing administrative expense, economies of scale, gaining rapid entry into new markets or industries, increased market power, government encouragement or support, cash (bank borrowing), replacement cost value, prior net sales and returns on total assets performance, customer drain, contingent loss, and personnel arrangement problems are statistically significant and have the expected signs. The coefficients of acquiring brand marks, patents or copyright technologies, of combining complementary resources, of buying below replacement cost, of controlling of material resources, and of government regulation problems are also significant, but have contrary signs.

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[1] *SPSS Advanced Statistics* 6.1, Surrey, UK: SPSS UK Ltd., 1994, P. 14.
[2] The Chi-Square coefficient is an indicator of how well or poorly the model fits with all of the independent variables in the equation.
[3] The value of -2 Log Likelihood for the logistic regression model when only the intercept is included.
[4] The value of -2 Log Likelihood for the logistic regression model that includes the independent variables as well as the intercept.
[5] C(net sales) = $[(26+31)/(26+31+13+127)]^2 + [(13+127)/(26+31+13+127)]^2 = 58.88\%$.
C(gross profits) = $[(31+32)/(31+32+15+119)]^2 + [(15+119)/(31+32+15+119)]^2 = 56.49\%$.
C(operating income) = $[(37+28)/(37+28+15+117)]^2 + [(15+117)/(37+28+15+117)]^2 = 55.78\%$.
C(net income) = $[(31+37)/(31+37+11+118)]^2 + [(11+118)/(31+37+11+118)]^2 = 54.79\%$.
C(earnings per share) = $[(42+32)/(42+32+19+104)]^2 + [(19+104)/(42+32+19+104)]^2 = 53.09\%$.
C(dividends per share) = $[(51+29)/(51+29+18+99)]^2 + [(18+99)/(51+29+18+99)]^2 = 51.76\%$.
C(price/earning ratio) = $[(45+30)/(45+30+26+94)]^2 + [(26+94)/(45+30+26+94)]^2 = 52.66\%$.
C(return on total assets) = $[(40+31)/(40+31+18+103)]^2 + [(18+103)/(40+31+18+103)]^2 = 53.39\%$.
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[21] Articles 3, 4, 5, and 6 of the Taiwan Stock Exchange Corporation Rules Governing Examination of the Listing of Securities.
[22] Article 38 of Statute for Encouragement of Investment and Article 13 of Statute for Upgrading Industries.
[23] Article 5 of Statute for Upgrading Industries.
[24] Article 75 of Company Law and Article 39 of Income Tax Law.

CHAPTER 9

THE PRE-TRANSACTION SIZE AND PERFORMANCE COMPARISON

--UNIVARIATE ANALYSIS

9.1 INTRODUCTION

Merger and acquisition activities in Taiwan have increasingly gained the attention of government officials, company management and the public in recent years. There were about one million business units in Taiwan in 1995.[1] The business scale on average remains very small.[2] The government, however, favours larger business units in the belief that this helps the economy in the face of growing international competition. Both domestic and international markets demand that firms attempt to maximise profits and only the most efficient firms can survive. Basically, the government encourages small and medium enterprises to merge or consolidate for the purposes of promoting reasonable operations and management and of offering some tax benefits. Business managers look to a target firm to increase their firm's size through this quick and less costly external growth method, and to exploit the tax benefits of merging.[3] The public or shareholders of acquired and acquiring firms hope to profit from these transactions.

Theoretically, the merger and take-over mechanism is very important in capitalist economies. The threat of a merger or take-over forces management to improve their performance and hence achieve better profitability. What is more important, a merger or take-over offers a firm an opportunity to rethink or refine its organisation and to reallocate its resources where necessary. This, in itself, may lead to improvements in the efficiency and profitability of the amalgamated company. Thus, we need to understand the characteristics of mergers and take-overs in Taiwanese enterprises prior to their taking place. Their difference is mentioned in the literature.

Unfortunately, empirical studies of such acquired and acquiring firms' characteristics do not yield consistent results (Harris et al. 1982).[4] The reasons may be as follows. First, the problem is complicated by the fact that a merger or acquisition simultaneously involves both the acquired and the acquiring firm. Their interaction will thus affect the outcome of the merger or acquisition. Second, the literature is focused on testing specific theories on a population or on applying general models to particular sets of acquired and/or acquiring firms. Third, the documented studies cover a variety of time periods and the characteristics of acquired and acquiring firms may change over time (Powell 1997).[5]

This chapter has two main objectives: (1) to assess the nature of the merger and take-over selection process. Do the acquired firms differ from acquiring or non-transaction ones in terms of size, profitability and liquidity amongst Taiwanese enterprises. (2) Does the efficiency of the merger and take-over mechanism comply with a theory of the firm? That is, we need to examine whether or not the assumption of profit maximisation in the economic theory of the firm is suitable for examining mergers and acquisitions. If the theory of profit maximisation does not explain the phenomenon, can we call on any other hypothesis or theory to appropriately explain the empirical results?

In this chapter we present the results of a univariate comparison of the financial data between the acquired, acquiring and non-transaction firms' size and their operating and financial performance over the one year prior to the transaction year. In the next chapter we present the multivariate results. The sample using in the following two chapters is completely different from the previous questionnaire survey. I have gained access to a very large data set which is more accurate and comprehensive than any existing one. The databases are thus the largest ever assembled by a considerable margin and so allow me to gain particular insights into the size and operating and financial performance comparisons of Taiwanese enterprises. This means that the conclusions of this study have much greater validity than any previous work carried out on Taiwanese mergers by any other researcher.

This chapter is arranged as follows. A review of previous studies is discussed in the next section. The samples and variables are described in the third section. The size and operating and financial performance comparisons of Taiwanese enterprises over the one year prior to the transaction year are presented in the fourth section. The results of T-tests applied to comparisons between acquired and non-acquired firms; between acquired and acquiring firms; between acquired and non-transaction firms; and between acquiring and non-transaction firms are discussed in the fifth section. The sixth section uses paired sample tests of differences between acquired and acquiring firms. Finally we offer a brief conclusion.

9.2 REVIEW OF PREVIOUS STUDIES

9.2.1 RELATED THEORETICAL LITERATURE

The theory of the firm traditionally assumes that producers aim to maximise profits, regardless of market structure. Empirical studies do not offer satisfactory evidence to explain the phenomenon of take-overs in terms of that classical theory of the firm. Winter (1964)[6] has argued that the assumption of profit maximisation can be criticised in three ways. The first is that firms do have goals, but it is not appropriate to summarise these goals as the "maximisation of profits". One main reason for this is that ownership and control are separated in modern large corporations. Stockholders only have very limited control over the selection of top management and no direct control at all over the operations of the firm. Senior managers, who have the powers to control the operations of the firm, may have goals that are not solely focused on profits.

The second criticism is that no single individual's preferences wholly control a firm's destiny except in the smallest companies. The firm is a set of individuals and groups each of whom have their own agendas. The interests of these individuals are not always the same. Different departments within the same company may have different

performance objectives. The Marketing Department may hope to increase its advertisement budget so as to increase sales. The Research and Development Department may press for more research personnel and facilities so as to innovate or improve existing products. The Finance Department focuses on the firm's cash flow and earnings. These groups, sometimes in coalition and sometimes not, make decisions about the firm's activities and this leads to the pursuit of many complex objectives. This situation of more than one person being involved in the decision making process implies that procedures exist for forging compromises among the decision-makers or for determining whose preferences should prevail when the firm addresses any special issue. The existence of a multiplicity of conflicting objectives implies that the firm's profits are not always uppermost.

The third criticism emphasises that the limitations on the information available to management result in the impossibility of profit maximisation. It is recognised that completely static and perfect information, as is assumed by the classical theory of the firm, does not exist in the real world. Usually it is costly to obtain and process information. The traditional formulations of the theory of the firm do not consider the costs of obtaining and processing information when deducing price and output policies to maximise a firm's profit. The highly complex and complicated decision-making process is usually accompanied by many uncertainties, so large companies try to find satisfactory rather than optimal solutions. Winter mentions that these characteristics of firms' behaviour are "satisficing"; actions are aimed at achieving a satisfactory completion of objectives, rather than striving for a maximal outcome.

Critics (Cyert and March, 1963[7]; Williamson, 1975[8]) of optimisation argue that information is not complete, reliable, or cheap, and that human rationality is limited. Thus, when choosing between all possible alternatives, optimising is impossible. Any firm which has found a rule of conduct whose results they regard as satisfactory (such as setting the price of a product at average cost plus n per cent) will not change that rule until it no longer produces satisfactory results, or the conduct proves to be seriously wrong. Even so, they do not try to optimise, but to search for better rules by

trial and error. Once they find an acceptable new rule, they will adopt it. This form of conduct is called satisficing.

Jensen and Meckling (1976)[9], focusing on the separation of ownership and control, issued the famous "agency costs" proposition. They considered that an agency problem arises when the principal (shareholders or employer) of a large modern company appoints an agent (manager or employee), who usually owns only a very small fraction of the ownership shares of the firm, to make decisions on their behalf but they cannot ensure that the agent performs those tasks in exactly the way the principal would like. This partial ownership may cause managers to work less actively and energetically than the employer and/or to expend more perquisites (luxurious offices, company car, etc.) because the majority shareholders pay the cost. When the manager's ownership claim falls, his incentive to apply himself to creative activities such as finding new profitable ventures falls. The manager may avoid such ventures simply because they require him to learn new knowledge and methods or to take too high a risk. The widely dispersed ownership of the large corporation affects whether the individual owners have enough time and/or use effective ways to monitor the behaviour of managers. Managers' incentives differ from those of shareholders. The problem is how to devise incentives that lead managers to report truthfully to shareholders on the issues they face and the actions they take so as to ensure they will act for the shareholders' benefit. The agency problem does not arise if a detailed contract can be drawn up to specify all the duties of the managers and the monitoring mechanism works well. In fact, management is a continuous decision making process so it is difficult to specify completely all the conditions which managers ought to answer. Jensen and Meckling considered that the costs involved in writing such provisions and the costs of enforcing them may not be a trivial expenditure. This may reduce the profitability of the firm as the limitations may prevent the manager from taking optimal actions. Therefore, managerial efforts are difficult or expensive to monitor and control.

Modern theories of the firm attempt to find an appropriate approach to represent our highly complicated society, especially concerning the separation of ownership from control and the imperfect product markets within which modern companies operate. Marris (1964)[10] considered that managers are presumed to satisfy instincts of power, dominance and prestige by pursuing growth as an objective. Baumol (1959)[11] argued that a manager's salary and security do not depend on profits but on the growth of the firm, as measured by the increase in its total sales revenue. The executives of a large company may desire prestige and perquisites which do not directly and uniquely relate to the firm's profits. In spite of these complications, neo-classical economists argue that even allowing for the separation of ownership and control, managers are still constrained to pursue profit maximisation through the disciplining effect of the merger or take-over mechanism. Winter (1964) considered that threats to the firm's survival or where profits persist on a downward trend stimulates managers to engage in profit maximising behaviour. If managers merely pursue their own self-interest at the expense of shareholders, the possibility of a take-over offers a possible resource for controlling this impulse (Marris, 1964; Manne, 1965[12]; Malatesta, 1983[13]).

Hay and Morris (1991)[14]describe the alternative possibility that the firm may acquire resources by merger or take-over. They consider that the traditional motives for merger or take-over carry three assumptions. The first is that managers are entirely efficient in their use of resources; there is no slack in the internal allocation of resources, and external resources are used effectively in the firm's interest. The second assumes that there are no agency problems. There is no divergence between the merger motives of managers and shareholders. The managers of firms in merger operations perform in the best interests of their shareholders. Third, the assumption is that the stock market is efficient in the strong sense.[15] The value of shares is fully reflected in the stock market so the market valuation of the firm is maximised.

If managers are not using assets to maximise the firm's value, then resources are not being efficiently allocated. A merger or take-over may be effected by those who can effectively reallocate assets and make better use of resources. In practice, the free

rider problem[16] can significantly weaken the take-over constraint mechanism, even though a number of strategies can be deployed to minimise its effects. Grossman and Hart (1980)[17] point out that when a firm does not maximise profits, the take-over raider offers a price to the target firm's shareholders, and then improves its performance and raises its market value. The free rider shareholders may reject the bid to wait for other shareholders to accept the offer and to enjoy the post-transaction performance improvement and valuation increase. But if the free rider shareholders account for more than 50 per cent of the total, then the take-over must fail. The free-riding element therefore can allow real discrepancies to appear between full efficiency and partial inefficiency, without sacking the managers through take-over.

Managers may seek their own objectives if there are not many constraints upon them. Hay and Morris state that this leads to one motive for mergers called 'managerial take-over'. The growth strategy of managerially controlled firms may allow for three possibilities for acquiring another firm. The first is the acquisition of a well managed and profit-maximising firm. Heal and Silberston (1972)[18] consider that it is possible to acquire such a firm since the growth-oriented firm is willing to pay more than existing market value to acquire it. The raider not only values the future stream of profits which are shown on the stock market in the shares' valuation, but also the assets and sales of the firm which thereby contribute to the size of the acquiring firm. The second possibility is that the raider will target another growth-maximising firm. The lower valuation of this firm tempts the raider to decrease its victim's growth and so increase its share price. The third possibility is the inefficient firm. The aim is to purchase it for the simple purpose of improving its efficiency and so reaping the attendant gains.

Managers are interested not only in profit and growth but also in security. If two merged firms do not have perfectly correlated returns, the variance of the post-merger firm's earnings stream will decrease and hence reduce its risk (Hay and Morris, 1991).[19] Managers are particularly interested in the conglomerate merger, because it simultaneously offers more stable earnings and faster growth

opportunities. Managers also deploy many defences against being taken over (e.g. poison pill[20], shark repellent[21], greenmail[22], white knight[23], golden parachutes[24], etc.) so as to prevent themselves becoming the victim. These defences may impose fairly large obstacles to the proper working of the stock market and may misallocate resources to growth-maximising but less efficient firms. Apparently, managerial motives for take-overs or for developing defences against being taken over distort the efficient use of resources and so affect the take-over mechanism.

Hay and Morris point out that the conglomerate merger can reduce risk only when the stock market is imperfect in some respect and/or the investors are not fully reasonable in every regard, and both of these are likely characteristics. First, small shareholders may not diversify adequately because the relatively high transaction cost of small share deals. Second, even if transaction costs are zero, many investors do not have enough information or expertise to judge the returns or risk of different shares. Third, Lewellen (1971)[25] considers that mergers can decrease the risk of default because the losses of one firm can be compensated for by the income of the other firm. Fourth, the shareholders are easy to diversify their portfolio of assets but the manager's wealth is closely tied to the performance of his/her own company. Conglomerate mergers can stabilise the earnings of a firm and therefore increase the manager's wealth and job security.

9.2.2 RELATED EMPIRICAL LITERATURE

No similar empirical studies relating to Taiwanese enterprises could be found. Therefore I discuss only studies relating to the UK and US.

9.2.2.1 SIZE

Singh (1975)[26], Harris et al. (1982)[27], Cosh et al. (1989)[28] and Ambrose and Megginson (1992)[29] all conclude that size is an important pre-transaction characteristic when using a univariate analysis. Singh (1975) and Cosh et al. (1980)[30]

conclude that size (net assets or ln net assets) is one of the most important characteristics differentiating between acquired and acquiring companies. Acquiring firms are, on average, bigger than those they acquire.

Singh (1975)

Singh used data from the Department of Trade and Industry's standardised accounting records of all quoted companies in four UK manufacturing industries (food, drink, clothing and footwear, and non-electrical engineering) for the years 1963-70. 112 of the 463 quoted firms had been taken over between 1967-1970 period, i.e. about 24.2% of the population.

To find the precise character of the take-over selection process during the years studied, both acquired and surviving firms, and acquired and acquiring firms were compared on a univariate and a multivariate basis. The relationship between size within a company's own industry and its probability of being acquired indicated that the probability of acquisition declines significantly as the firm's size increases, except for the smallest size quintile. Thus he found a curvilinear (non-linear) relationship between the two variables. The results of the differences between acquiring and acquired companies showed that size is one of the most important distinguishing characteristics. He found that where smaller firms increased their size, they reduced the probability of being taken over.

Cosh, A. D., A. Hughes, and A. Singh (1980)

Cosh et al. analysis two kinds of merger. First, there are those that involve the acquisition of 50 percent or more of the shares of one company A by another B. The second category consists of those in which two companies A and B amalgamate to form a new legal entity C. This study concentrates upon the microeconomic aspects of take-overs and considers their impact on the individual company, especially those take-overs that took place in 1967-1969 among those large public companies quoted on the United Kingdom stock exchanges that managed primarily in the UK and in the manufacturing and distributive industries. The sample of firms, drawn from the

control group, that matched the acquired or acquiring firms by industry and by size for each acquired or acquiring firm.

The size differences between acquiring and acquired companies and between acquiring and nonacquiring companies are all statistically significant. The acquiring companies are on average larger (in terms of ln net assets) than the acquired companies and larger (in terms of ln sales, ln total assets, and ln net assets) than nonacquiring companies. The acquired firms are significantly larger (in terms of ln sales) than nonacquired companies. But when the tests on alternative measures of size (in terms of ln total assets and ln net assets), the results are not statistical significance.

Harris, R. S., John F. Stewart., David K. Guilkey, and Willard T. Carleton. (1982)
Harris et al. study both the financial and product market characteristics of acquired companies to understand if such characteristics differ considerably from the characteristics of nonaquired companies. The sample consists of 45 acquired firms in 1974 and 1975, 61 acquired firms in 1976 and 1977, and approximately 1,200 nonacquired firms to identify those characteristics of a firm that have a statistically significant impact on the probability that the firm will be acquired. The primary data resources are from five parts.: (1) the COMPUSTAT Expanded Annual Industrial Tape. (2) the COMPUSTAT Expanded Annual Industrial Research File; (3) the Federal Trade Commission's Merger Series; (4) the 1972 Census of Manufacturers; and (5) the Federal Trade Commission Annual Line of Business Data. The variables fall into two broad categories: A) financial statement variables and B) industry product market characteristics. All financial variables are based only on individual company data and normalised by the industry average. Product market variables are developed at the industry level using the 1972 Census of Manufacturers and FTC Line of Business Report.

The univariate result shows that the difference of size (in terms of total assets) is statistically significant between acquired and non-acquired companies in both time

periods. Acquired firms are significantly smaller than non-acquired ones. This result indicates that increasing size can decrease the chance of being taken-over.

Cosh, A. D., A. Hughes, K. Lee, and A. Singh (1989)

Cosh et al. analysed two samples of firms, one relating to mergers in the period 1981-83, when the level of take-over activity was relatively low, and the other relating to mergers in the take-over boom year of 1986 in the UK. There were 59 and 77 companies involved in a merger in the period 1981-83 and 1986 respectively for which data were available on the Exstat UK Company Accounts databank. The study focused on the characteristics of the take-over selection process and compared the pre-merger characteristics of acquiring and acquired firms. The variable of size was compared with their industry averages.

On a univariate basis, acquired firms were significantly smaller than their industrial averages and than their acquiring firms in the period 1981-83 and in the boom year 1986. The size of acquiring firms compared with their industrial averages was mixed (smaller in the period 1981-83 and greater in the period 1986) and not significant in both periods.

Ambrose and Megginson (1992)

This study extends the Palepu (1986) acquisition likelihood model by examining which variables influence the probability that a firm will receive a take-over bid. The sample includes 169 target firms and 267 nontargets that are listed on the New York Stock Exchange (NYSE) or the American Stock Exchange (ASE) during the period January 1981 to December 1986. The financial variables of size, average excess return, growth, liquidity, leverage, growth-resource dummy, market-to-book ratio, price-earning ratio, and tangible (fixed) assets-to-total assets were analysed. These variables were compared with their temporally-matched subsample of target and nontarget firms.

The univariate comparison of targets and nontargets indicate that size (in terms of net book assets' value) is the variable possessing significantly different means for target and nontarget firms. Target firms are significantly smaller than nontarget ones in the 1980s. The conclusion is similar to the Palepu's finding for the 1970s. The empirical study indicates that take-over discipline is strong for smaller firms but is slim for large firms.

9.2.2.2 PROFITABILITY

Kuehn (1975)[31] found that increases in profits reduce the chances of being taken over. Singh (1975) presents that acquired companies have significantly smaller profitability than surviving companies. Cosh et al. (1980) indicate that acquired firms were significantly less profitable than their acquiring firms and than non-acquired firms. Cosh et al. (1989) show that acquired firms demonstrated significantly poorer profitability than their acquiring firms and than their industry averages respectively. Acquiring firms show significantly higher profitability than their industrial averages. Weir (1997)[32] found that target firms have a significantly lower profitability than non-targets.

Kuehn (1975)

Kuehn studied take-over activity in the UK over the period 1957-69 and attempted to relate the take-over phenomenon to developments in the theory of the firm. He chose 1,554 out of 3,566 take-overs of publicly quoted UK companies, allocated over 67 industrial groups. The financial and stock market variables of profit rate, growth rate, retention ratio, liquidity ratio, size (in terms of net assets), and valuation ratio were included to discriminate between firms that had been taken over and firms that had not so as to understand the causes of take-over. The examination of take-overs is considered separately for each industry.

Kuehn found, using univariate analysis that profits and growth were as significant as expected in a majority of industries. That is, increases in profits and growth reduce

the probability of being take-over. Kuehn considered that managers desire security so the sacrifice of profits to the objective of growth is constrained because low profits may result in the possibility of take-over. This indicates that firms avoid being taken over by achieving high growth or high profit or both. Empirical results indicate that the take-over mechanism can apply readily to low profit firms.

Singh (1975)

The results of the univariate analysis indicate that profitability (over 1-year and 3-years) revealed significant differences between acquired and surviving companies during 1967-70. The acquired companies had, on average, worse profitability than surviving firms. He found that where smaller firms increased their size, they reduced the probability of being taken over, whilst an increase in profitability offered little protection to firms.

Singh argued that take-over discipline was strong for smaller unprofitable firms but was weak for large firms. These results may encourage managers of large companies to increase their size rather than improve their profitability. Therefore, for larger companies the empirical evidence about the nature of the take-over mechanism supports the behavioural and agency theories of the firm, i.e. firms attempt to satisfice rather than to adopt maximising behaviour and that the firm is a set of individuals and groups each of which has its own aspirations. The findings give very little support to the neo-classical theory of the firm and to the associated belief in economic natural selection.

Cosh, A. D., A. Hughes, and A. Singh (1980)

Cosh et al. show that in only nine of the fourteen individual industries the average profitability of acquired firms were significantly less profitable (in terms of pre-tax return on net assets) than their acquiring firms in their 1967-69 sample. There are highly significant negative differences between acquiring firms and the control group of all non-acquiring firms concerning pre-tax profitability (in terms of net income / net assets). But when they use trading profits-sales as a measure of profitability, the

result is not significant between the two groups. On the other hand, the results indicate an unambiguous conclusion with respect to profitability between the acquired and control group firms. The acquired firms are on average significantly less profitable than the control group firms.

Cosh, A. D., A. Hughes, K. Lee, and A. Singh (1989)

Cosh et al. found that acquired firms were less profitable (in terms of pre-tax return on average net assets) than their industrial averages (one-year and three-years) and than their acquiring firms in the period 1981-83 though not in the boom year 1986. Acquiring firms showed significantly higher profitability than their industrial averages (one-year and three-years) in both periods.

Weir (1997)

Weir collected 94 UK public companies which were acquired and fully quoted on the London Stock Exchange during the period 1990-93. The sample included all sectors of the economy. The control sample of non-acquired firms was chosen which matched the acquired firms by company type, size and sector, as defined by the Standard Industrial Classification (SIC).

The univariate analysis shows that acquired firms have a significantly lower mean profitability (in terms of return on capital before tax / net assets) than non-acquired firms. It indicates that poor performance of the acquired firms makes it a take-over target. However, when this measures firm profitability relative to the industry average, the performance differences become insignificant across all samples.

9.2.2.3 LIQUIDITY

High liquidity (i.e. low levels of short-term debt) may provide a motive for take-over even though it is possible that low liquidity can signal that the company is actually, or potentially, in trouble and therefore a likely target. Singh (1975)[33] found that acquiring firms during the years 1967-70 were significant more liquid (over two year

averages) than those they acquired. Kuehn (1975)[34] showed that firms exhibiting low liquidity relative to the industrial average were taken over. Harris et al. (1982)[35] indicated that acquired firms had significantly higher liquidity than non-acquired firms. But the study of Ambrose and Megginson (1992)[36] showed that differences in liquidity (in terms of net liquid assets / total assets) between targets and non-targets were not significant for their 1981-86 data.

Kuehn (1975)

Kuehn concluded that liquidity plays a role in the take-over process such that the less liquid relative to the industrial average was taken over. He found, liquidity was seldom significant but, when measured as an average of the three years before the offer divided by the appropriate industry averages, it became more frequently significant than one or two years average prior to the offer. This implies that acquired firm had liquidity difficulty before the offer a few years, it has made progress in improving its liquidity up to the time it was acquired.

Harris, R. S., John F. Stewart., David K. Guilkey, and Willard T. Carleton. (1982)

They found that liquidity (in terms of net working capital / assets) has an effect on the probability of acquisition in the 1974-75 period but the effect is statistically insignificant in the 1976-77 period. Acquired firms tend to have more liquidity than non-acquired firms

9.3 VARIABLES, HYPOTHESES AND SAMPLES

9.3.1 VARIABLES AND HYPOTHESES

To present a clear and accurate picture of the merger and take-over selection process during 1990-95 in Taiwanese enterprises, we compared the size, profitability, liquidity and growth between acquired firms, acquiring firms, non-transaction firms and non-acquired firms.

9.3.1.1 SIZE

The probability of being merged or being taken-over decreases as the size of the firm increases. This hypothesis is based on the premise that there are many transaction costs associated with merger and acquisitions related to firm's assets. The transaction costs include merger or acquisition costs, administration fees (including lawyer, chartered accountant, bank and miscellenance fees), and management defences which may create fairly large obstacles and hence impose hefty extra costs. Acquiring a large firm places greater constraints on the sources of finance for the transaction. In other words, a large acquired firm has fewer potential raiders than a small acquired firm and thereby stands a smaller chance of being taken over. The large acquiring firm has greater financial ability (in terms of its own funds or term borrowing from the banks) to merge or take-over a small firm. These transaction costs are likely to increase with target size, so we assume that acquired firms are smaller than non-acquired, acquiring, and non-transaction firms and acquiring firms are larger than non-transaction firms. To test this hypothesis, the size of companies was measured by the following variables: (1) total assets; and (2) net sales. Total assets include current assets, fixed assets, long-term investments, net intangible assets, and other assets. Net sales are defined as total sales minus sales returns and discounts.

9.3.1.2 PROFITABILITY

Empirical studies indicate that acquired firms are significantly less profitable than their acquiring firms and than nonacquired firms. In spite of the separation of ownership and control in modern companies, managers are still constrained to pursue profit maximisation through the disciplining effect of the merger or take-over mechanism. Firms with low profits are likely to be targeted by firms with high profits. This hypothesis is based on the premise that mergers or acquisitions are a mechanism by which managers who cannot or will not achieve market value maximisation of their firms are replaced. So I assume that acquired firms are less

profitable than non-acquired, acquiring, and non-transaction firms. Prior empirical results of the profitability between acquiring and non-transaction firms are not clear so I do not make any prediction about the direction in this case. The profitability performance of companies was measured by the following variables: (1) earnings per share; and (2) return on total assets. The earnings per share is measured by the money earned in profit per ordinary share (the total profits after tax and after deducting preference dividends divided by the number of shares). The return on total assets is the amount of profit over a financial period (normally 12 months, although it may be less) as a percentage of the total assets of a company.

9.3.1.3 LIQUIDITY

High liquidity or cash flow may signal excess current assets or cash and imply that the asset allocation is not efficient. Highly liquid firms may be attractive to other firms and provide a motive for take-over. However, it is likely that the low liquidity firm may be indicating that its operating performance is not good and hence indicating itself to be an acquisition candidate. Previous empirical results are ambiguous so we do not make any prediction about the direction of the liquidity of acquired and acquiring firms. Thus the variable liquidity may be of either sign. The liquidity of companies is measured by (1) : current ratio; and (2) : cash flow ratio. The current ratio is the ratio of current assets of a business to current liabilities. The cash flow ratio is used for assessing the solvency of a company. It is calculated by dividing the operational cash flow by current liabilities. The cash flow ratio indicates a company's ability to satisfy its short term debts.

9.3.1.4 GROWTH

Growth has been used by many studies (e.g. Singh, 1975; Palepu, 1986; Cosh et al., 1989; Harris et al., 1982; Ambrose and Megginson, 1992; and Powell, 1997) to distinguish acquired firms from non-acquired or acquiring firms. The first three of these studies indicate that non-acquired or acquiring firms enjoy significantly greater

growth than acquired ones but the last three studies show that the rate of growth is negative and is not significant and that acquired firms have had lower growth than non-acquired firms.

If the small firm is an easy target, then its managers will try to increase its size, i.e. pursuing growth, to avoid an acquisition. On the other hand, such growth is likely to increase a firm's probability of becoming a target. The bidding company may prefer to merge with a higher growth firm. Marris (1964)[37] found that firms that attempt to maximise their growth rate may become take-over candidates because the pursuit of growth may result in a loss of control and in a failure to meet the valuation ratio[38] constraint. For acquiring firms, mergers and take-overs are a common and feasible way for the firm to expand but we do not know if the average growth rate of acquiring firms is greater than the average growth rate of nonacquiring firms before the transaction. The empirical study of growth of acquired and acquiring firms is not apparent so we do not assume the direction of growth of them. The firm's growth is measured by the growth percentage of total assets in year t-1 being equal to the total assets in year t-1 minus the total assets in year t-2 over the total assets in year t-2.

9.3.2 SAMPLES

Lists of acquired and acquiring firms which were involved in mergers and take-overs during the period 1990-1995 were obtained from three government departments: The Department of Commerce of the Ministry of Economic Affairs, The Bureau of Industrial Affairs of the Ministry of Economic Affairs, and The Securities and Exchange Commission of the Ministry of Finance of The Republic of China. The financial data on these firms was collected from the Joint Credit Information Centre (JCIC) in Taiwan in August 1997. All the banks were controlled by the government (including local, provincial, and central government) in Taiwan until 1992. The JCIC is organised by all of the banks which operate in Taipei city, i.e. it is a quasi-official organisation, and they share the collected information. The Ministry of Finance of The Republic of China demand all chartered accountants when they examine a firm's

financing, to present an auditors' report (for amounts of capital over NT$ 50 or 30 million) to related organisations, and they demand since July 1980 that one copy be issued to the Joint Credit Information Centre.[39] The Centre collects data from almost all the large companies (including listed and unlisted companies) which have borrowed money from the banks. This data includes balance sheet, statement of income, statement of changes in stockholders' equity and statement of cash flows. The quality of the JCIC's data is relatively reliable but the weakness of the JCIC's data is that it does not include data relating to companies with capital less than NT$ 50 or 30 million or those which do not borrow money from the banks.

The findings of this study are described in the following sections using univariate comparisons of the mean values of the variables for the following groups of firms.

1. Acquired firms (Acd)--the group of observed firms that were merged or acquired in the years 1991-1995;
2. Acquiring firms (Acg)-- the group of observed firms that merged or acquired other observed firms in the years 1991-1995;
3. Non-transaction firms [Non(Trans.)]--the control group of firms, none of which were merged or acquired nor enacted any merger or acquisition over the period 1991-1995.
4. Non-acquired firms [Non(Acd)]--the group of firms which includes acquiring firms and non-transaction firms.

Since there are fewer government regulations and restrictions in Taiwan than in other countries, we have an opportunity to observe, in Taiwanese enterprises, the merger and take-over operations of a relatively free market. As shown in Table 9-3-1, there were 83 acquired firms and 186 acquiring firms collected from the JCIC database between 1990 and 1995. We also collected 1,791 non-transaction firms, including all the JCIC database, that offer comparatively complete financial data during the period 1988-1995. This enables an accurate comparison of the size, operating and financial characteristics of Taiwanese enterprises.

More acquired and acquiring firms are observed in 1995 than in any of the other years when there were 25 and 56 firms respectively. The fewest observed acquired and acquiring firms in a year were one and 11 in 1990 respectively. There has been an upward trend in the number of acquired and acquiring firms since 1990.

A test was carried out to see if the sample was similar to the identified populations in acquired and acquiring firms obtained from government lists in terms of the distribution of transactions over the years. We used the Chi-Square goodness-of-fit test. The null (H_0) and alternative hypotheses (H_1) were as follows:

$H_0 : Y_i = Y_{i0}$ for categories i = 1990, ... , 1995, Y_{i0} are specified probabilities.

$Y_{i0} = N_i / \sum N_i$, where N_i is the identified number in category i.

and

H_1 : At least one of the cell probabilities differs from the hypothesised value.

$\chi^2 = \sum [(n_i - E_i)^2 / E_i]$, where n_i is the observed number in category i and

$E_i = nY_{i0}$ is the identified number under H_0

As shown in Table 9-3-2 and Table 9-3-3, the computed value of $\chi^2 = 3.7962$ for acquired firms and $\chi^2 = 2.2741$ for acquiring firms are all smaller than the critical value of 11.0705, so the null hypothesis cannot be rejected and it can be concluded that there are no significant differences in the distribution of numbers of transaction over the years 1990-1995 between the population (gleaned from government departments' lists) and the acquired firms, and between the population and the acquiring firms.

9.4 DESCRIPTIVE STATISTICS RELATING TO AVERAGE SIZE AND OPERATING AND FINANCIAL PERFORMANCE OVER THE ONE YEAR PRIOR TO THE TRANSACTION YEAR

There was only one acquired firm in 1990. This sample is too small to be a suitable representation for that year. Our comparisons start from 1991 to 1995. As shown in Table 9-4-1, on the whole, the mean size (in terms of total assets and net sales) of acquired firms was smallest in 1991 and greatest in 1995. The smallest and greatest average profitability (in terms of earnings per share and return on total assets) of acquired firms was in 1991 and 1995 respectively and which indicated an upward trend. The average size, profitability and liquidity of acquiring firms do not have apparent regularity in research years. Non-transaction firms had an upward trend in size (in terms of total assets and net sales) and liquidity (in terms of current ratio) during the period 1991-1995. The earnings per share and return on total assets of non-transaction firms was about the same during the period 1992-1995.

If we consider general economic growth and inflation, the slightly upward trend of size (in terms of total assets and net sales) of non-transaction enterprises is reasonable. The various sizes and operating and financial performances of the acquired and acquiring firms over different years indicate that the sample of acquired and acquiring firms is not large and is easily affected by the nature of the industry or for other reasons, such as the economic depression in 1990 (see Figure 9-3-1) and the bear stock market from 1991 to 1993 (see Figure 9-3-2) in Taiwan.

When we compare the size and operating and financial performance of acquired, acquiring and non-transaction firms over the transaction years, the results are probably affected by the following four phenomena: (1) the business cycle: economic booms in 1987, recession in 1988-89, depressions in 1990, and recovery in 1991-95. (2) important government-led financial or economic policy changes: for example, the government approved the setting up of new securities companies in 1988 and of new private banks in 1992. (3) Special industries' need for mergers and acquisitions: e.g.

the fluctuation of electrical & electronic industries (including information products) and the mergers and acquisitions of the securities industry during the years 1990-1995. (4) extreme values or cases: the average firm's size or operating and financial performance may be affected by extreme values or cases, especially when the acquired or acquiring firms' samples are small.

As shown in Table 9-4-2, the Taiwanese economy experienced a period of prosperity in 1987 owing to many years of economic growth. In 1988, the government approved the setting up of new securities companies. There were only 28 securities brokers (in headquarters) in 1987, but this abruptly increased to 373 in 1990. Due to limited investment opportunities, excess cash flowed into the stock market and into real estate. In the meantime, foreign investors and speculators expected that the New Taiwan Dollar would appreciate so monies moved quickly from other countries to Taiwanese banks and into the Taiwanese stock market in order to realise opportunities for profit. The government became concerned that sharply rising stock market prices would affect economic stability and in September 1989, it announced that it would levy a stock income tax. This news caused the stock market to suddenly slump in 1990. The stock market yearly average price rapidly fell from 8,616.14 in 1989 to 6, 775.32 in 1990. The decreased aggregate demand caused the growth rate to fall from 8.23% in 1989 to 5.39% in 1990. Although growth recovered a little in 1991, the stock market did not recover until 1994. This serious recession in Taiwanese economic development deeply affected firms' operations and profitability. It is therefore likely that we need to observe the whole situation during the years 1991-1995 rather than merely making year-by-year comparisons.

9.5 INDEPENDENT SAMPLES T-TESTS FOR AVERAGE SIZE AND OPERATING AND FINANCIAL PERFORMANCE OVER THE ONE YEAR PRIOR TO THE TRANSACTION YEAR

In this section we compare the size, operating and financial performance between acquired firms, acquiring firms and non-transaction firms over the one year prior to

the transaction year during the period 1991-1995 as a whole, rather than on a year-by-year basis. The value of non-transaction firms in every year is calculated the average value of all non-transaction firms first and then calculated the one year prior to the transaction (acquired and acquiring) year during the period 1991-1995. The results are shown in Table 9-5-1. As a total analysis of the whole period, it shows that acquiring firms have the greatest average total assets, net sales and return on total assets. Acquired firms are smaller in total assets, net sales, earnings per share and return on total assets. But the acquired firms get greater average current ratio and cash flow ratio, and the acquiring firms hold the smallest cash flow ratio.

Table 9-5-2 indicates that acquired firms had significantly smaller average total assets, net sales and returns on total assets (at $\alpha = 0.05$) than acquiring firms did. Acquiring firms had significantly greater average total assets and net sales (at $\alpha = 0.05$) than non-transaction firms. Acquired firms also had significantly smaller average net sales and returns on total assets (at $\alpha = 0.05$) than both non-acquired and non-transaction firms. But the acquired firms had significantly greater average current ratio (at $\alpha = 0.05$) than both non-acquired and non-transaction firms.

The results indicate that acquiring firms in Taiwan are greater in size (in terms of total assets and net sales) than both acquired and non-transaction firms over the one year prior to the transaction year during the period 1991-1995. Acquired firms are smaller in size (in terms of net sales), and have lower profitability (in terms of returns on total assets) and greater liquidity (in terms of current ratio) than non-acquired and non-transaction firms over the one year prior to the transaction in the 1991-1995 period.

Acquiring firms were larger and more profitable (in terms of returns on total assets) than the acquired firms over the one year prior to the transaction year. But acquiring firms did not have significantly better earnings per share than did acquired firms over the one year prior to the transaction year. This may indicate: (1) The standard deviation of earnings per share is apparently higher than return on total assets so the difference of average earnings per share is not significant. (2) The acquiring firms

have many more shares outstanding than acquired firms which works to reduce the earnings per share below that of acquired firms. The higher current ratio of acquiring firms as compared to non-transaction firms (α = 0.063) indicates that the former's short-term financial position (i.e. its liquidity ability) is better or healthier than the latter's.

The extraordinarily high average current ratio of the acquired firms indicates that they have relatively high current assets (or relatively low current liabilities) compared to those of non-transaction firms. The result indicates that managers would like to hold more net current assets within the firm. Greater levels of current assets in the firm mean that managers have more resources under their control, and hence this increases their power. At the same time, high current assets attracts raiders and may act as an important pre-condition for take-over. The relatively high liquidity (current ratio) may explain why acquired firms are easy targets for acquiring firms.

Our finding that acquiring firms are bigger and more profitable than their targets matches that found by Singh (1975) and Cosh et al. (1980 and 1989). It indicates that acquiring firms are normally large and profitable so they have relatively more finance (either as their own funds or as borrowings from banks) and better abilities to merge with, or take-over, small and less profitable firms. The managers of the less profitable companies are then replaced by managers from the more profitable companies. The take-over mechanism can thus act as an efficient means of reallocating resources. This situation is consistent with the result predicted by the theory of the firm i.e. the firm's objective is to pursue profit maximisation.

The results of the univariate comparisons of the average characteristics of the acquired, acquiring, and non-transaction firms in the period 1991-1995 over the one year prior to the transaction year may be summarised as follows:

Total assets	Acg > Non(Trans.) ≥ Acd
Net sales	Acg > Non(Trans.) > Acd

Earnings per share	Acg ≥ Acd; Non(Trans.) ≥ Acd; Non(Trans.) ≥ Acg
Return on total assets	Acg > Acd; Non(Trans.) > Acd; Acg ≥ Non(Trans.)
Current ratio	Acd ≥ Acg; Acd > Non(Trans.); Acg ≥ Non(Trans.)
Cash flow	Acd ≥ Acg; Acd ≥ Non(Trans.); Non(Trans.) ≥ Acg

In the above summary, > presents statistical significance ($\alpha = 0.05$) between the groups; similarly, ≥ presents a positive difference though not a statistical significance (at $\alpha = 0.05$) between the groups.

9.6 PAIRED SAMPLES T-TESTS FOR AVERAGE SIZE AND OPERATING AND FINANCIAL PERFORMANCE OVER THE ONE YEAR PRIOR TO THE TRANSACTION YEAR

In the previous section, we used pooled data to compare the size, operating and financial performance between acquired, acquiring and non-transaction firms over the one year prior to the transaction year over the period 1991-1995. Although this method can elucidate the general tendency in the observed samples it may sometimes also dilute or weaken some characteristics by dint of aggregating different companies together. To reveal the exact relationship between acquiring and acquired firms in this section, we use paired samples to compare the average size and average operating and financial performance over the one year prior to the transaction year during the period 1991-1995. We also need to notice that owing to the incomplete nature of the data obtained, the number of paired samples is reduced to fifty. Thus, the analysis in this section may produce slightly different results compared with those of the last section.

For the same reasons discussed in Sections 9.4 and 9.5, we test the size and operating and financial performance between acquired and acquiring firms over the one year prior to the transaction year during the period 1991-1995 as a whole, rather than as a year-by-year comparison. The results are shown in Table 9-6-1. The paired samples T-tests indicate that acquiring firms had significantly greater than average total assets,

net sales (at $\alpha = 0.05$) and returns on total assets (at $\alpha = 0.10$) than did acquired firms. No other comparisons showed statistically significant differences.

The results indicate that acquiring firms in Taiwan are still bigger (in terms of total assets and net sales) than are acquired firms over the one year prior to the transaction year in the 1991-1995 period. It is a similar result to that found by Singh (1975) and Cosh et al. (1980 and 1989). Acquiring firms also have significantly better profitability performances especially in terms of returns on total assets than do acquired firms over the one year prior to the transaction year. The level of significance has decreased from the last section's T-tests $\alpha = 0.041$ to this section's paired samples T-tests $\alpha = 0.065$. Though acquiring firms had better profitability performance (in terms of earnings per share) than did acquired firms over the one year prior to the transaction year, this difference is not significant. The other factor complicating the findings on the earnings per share is that acquiring firms may have many more shares outstanding than do acquired firms so they may not have better earnings per share than do those of acquired firms. The less profitable companies merge with the more profitable companies. This implies that the take-over discipline is strong for small and low profit firms. The take-over threat forces firms to improve their profitability. The empirical evidence on the nature of the take-over mechanism, as experienced by acquired firms, supports the predictions of the traditional theory of the firm. The result of the paired samples T-tests between acquiring and acquired firms is similar to the result of independent samples T-tests.

9.7 CONCLUSION

The results of independent samples T-tests on all the observed Taiwanese data indicate that acquiring firms are bigger and more profitable than are acquired firms over the one year prior to the transaction year during the period 1991-1995. Acquired firms are smaller and have poorer returns on total assets than do non-acquired firms. This indicates that acquiring firms are normally large and profitable; they have sufficient funds or access to credit (e.g. borrowing from banks or financial institutes)

to afford to merge with or take-over smaller and less profitable firms. Merger or take-over is an option chosen by those who can effectively reallocate and make better use of resources. This situation is consistent with the theory of the firm as we can see how firms aim to maximise profits.

The paired samples T-tests indicate that acquiring firms are greater in size and more profitable, particularly in terms of return on total assets, than are acquired firms over the one year prior to the transaction year. Acquiring firms enjoyed better profitability performances (in terms of earnings per share) than did acquired firms, but the differences are not significant. Less profitable companies merge with more profitable companies. This implies that the take-over discipline is strong for small and low profit firms. The take-over threat forces firms to improve their profitability. The empirical evidence on the nature of the take-over mechanism as experienced by acquired firms supports the traditional theory of the firm. The result of the paired samples T-tests between acquiring and acquired firms indicates that it is similar to the result of independent samples T-tests.

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[1] There were 994,305 business units in Taiwan in 1995. Monthly statistics of the Republic of China, Directorate-General of the Budget, Accounting and Statistics, Executive Yuan, Republic of China, June 1997, p. 38.

[2] There were 932,852 small and medium business units in Taiwan in 1994. That is about 96.26% of the total. The Small and Medium Business White Paper, The Ministry of Economic Affairs, November 1995, p. 10.

[3] Article 13 of Statute for Upgrading Industries.

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[14] Hay, Donald A., and Derek J. Morris, *Industrial Economics and Organisation: Theory and Evidence*, Oxford: Oxford University Press, 1991, P. 510.
[15] The strong form of the efficient market hypothesis implies that share prices will accurately reflect all relevant information, whether publicly available or not.
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[19] Hay, Donald A., and Derek J. Morris, *Industrial Economics and Organisation: Theory and Evidence*, Oxford: Oxford University Press, 1991, P. 522.
[20] Any antitakeover defense used by a company that fears an unwanted take-over which ensures that a successful take-over bid will trigger some event that substantially reduces the value of the company.
[21] Contracts are written into a firm's provisions, such as entitling managers to conditional increases in pension fund payments on loss of office, or giving them options to buy company shares at low prices, to make a firm less attractive and less vulnerable to unwanted acquirers.
[22] The purchase of a large number of shares in a company, which are then sold back to the company at a premium over the current market price, in return for a promise not to launch a bid for the company.
[23] A person or firm whom it sees as a more suitable owner for a company to replace an unacceptable or unwelcome bid from a hostile bidder.
[24] A clause in the employment contract of top management providing for financial or other benefits if the management is sacked or decides to leave following a take-over or change of ownership.
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CHAPTER 10

A COMPARISON OF PRE-TRANSACTION SIZE AND PERFORMANCE

--MULTIVARIATE ANALYSIS

10.1 INTRODUCTION

To more accurately determine whether there are differences between two or more kinds of firm (i.e. acquired, acquiring or non-transaction) we conduct a multivariate test. Such an analysis provides more accurate findings than are possible with a univariate comparison, because the residual variance is reduced. With a univariate analysis, significant differences among acquired, acquiring and non-transaction firms may be obscured by the poor fit of a single explanatory variable model. In this sense, univariate results may not shed light on important aspects of the data. For this reason, method of multivariate analysis, logistic regression analysis, is carried out in this chapter.

This chapter aims to address the following questions: (1) Do acquired firms differ from their acquirers or from non-transaction firms in terms of their size, growth, profitability and liquidity? (2) Can the traditional theory of the firm, based as it is on profit maximisation, account for the nature of mergers or take-overs? If the theory of profit maximisation cannot explain this economic phenomenon, can we identify any other hypothesis or theory able to explain the empirical results?

This chapter is arranged as follows. Previous empirical studies on this topic are reviewed in the next section. In the third section I outline why I have chosen to apply five logit models as part of the analysis. In the fourth section I use these logit models to separately examine differences between acquired and non-acquired firms; between acquired and acquiring firms; between acquired and non-transaction firms; and

between acquiring and non-transaction firms in terms of their size, growth, profitability and liquidity. Finally, in the fifth section I draw some conclusions.

10.2 REVIEW OF PREVIOUS EMPIRICAL STUDIES

10.2.1 SIZE

For the UK, Singh (1975)[1], Cosh et al. (1989)[2], Powell and Thomas (1994)[3], Powell (1997)[4] and, for the US, Harris et al. (1982)[5], Dietrich and Sorensen (1984)[6], Hasbrouck (1985)[7] and Palepu (1986)[8] all concluded that size is an important factor that decreases the likelihood of becoming an acquired firm. This means that the smaller the firm, the greater the likelihood of its being taken-over. Singh (1975) showed that the most important discriminator between acquired and acquiring companies during 1967-70 was size (net assets or gross income). Small companies are highly likely to be acquired. He found that smaller firms which increased in size could reduce their probability of being acquired. Harris et al. (1982) noted that smaller firms are more likely to be acquired. Dietrich and Sorensen (1984) indicated that size (market value of the equity) is significant. The probability that a firm becomes a merger target increases as size decreases. Hasbrouck (1985) concluded that size (logarithm of market value of equity) is the most significant characteristic of target firms when control groups (non-target firms) are matched by industry. Target firms were significantly smaller than non-target firms. Palepu (1986) pointed out that size (net book assets) is statistically significant. The smaller a company is, the more likely it is to become a target. Cosh et al. (1989) found that size (logarithm of net assets) is the most important discriminator between acquired and acquiring firms. Acquired firms are significantly smaller than their industry averages and than their acquirers. Powell and Thomas (1994) found firm size to be an important variable in explaining take-over likelihood; the smaller the size, the higher the likelihood of being taken-over. Powell (1997) found that size (logarithm of total assets) is an important determinant of take-over likelihood; the smaller the firm, the higher the likelihood of take-over. Overall, UK and US empirical studies indicate that size is an

important element and the smaller the firm the greater the likelihood of being taken-over. Acquiring firms are larger than those acquired.

10.2.2 PROFITABILITY

Using UK data, Singh (1975) concluded that changes in profitability and levels of profitability are important discriminators in multivariate analyses conducted on data covering the period 1967-70. Acquiring firms are more profitable than those they acquire. Using US data, Palepu (1986) showed that average excess returns[9] (target firms versus non-target firms) are statistically significant indicating that inefficiency is likely to increase a firm's probability of becoming a target. However when he used accounting returns on equity to replace average excess returns as a proxy for management efficiency, this variable was not significant. Cosh et al. (1989) could not find evidence to support the hypothesis that acquiring firms have significantly higher profitability (pre-tax returns on average net assets) than their acquired firms. Powell and Thomas (1994) found that firm profitability is an important variable in explaining take-over likelihood. The lower the firm's return on equity, the higher the likelihood of being taken-over. Weir (1997)[10] found that acquired firms have significantly lower profitability (return on capital) than do non-acquired firms. Less profitable firms are more likely to become take-over targets. On the whole, acquiring firms are more profitable than those they acquire and acquired firms have lower profitability than non-acquired firms.

10.2.3 LIQUIDITY

Stevens (1973)[11] concluded that acquired firms tend to be more liquid than non-acquired firms. Harris et al. (1982) found that during 1974-75 higher liquidity (net working capital / assets) increased the possibility of acquisition but in the period 1976-77 the effect was reversed and was not statistically significant. Dietrich and Sorensen (1984) found that the probability that a firm will become a merger target increases as the current ratio increases but it is not significant. Hasbrouck (1985) and

Ambrose and Megginson (1992)[12] also indicate that target firms are characterised by their high liquidity (current financial assets net of current liabilities / market value of equity or net liquid assets / total assets) but this trait is not significant. Powell and Thomas (1994) found firm liquidity (net liquid assets / total assets) to be an important variable in explaining the likelihood of take-over. In contrast to Stevens' (1973) findings, they conclude that the lower the liquidity of the firm the higher the likelihood of being taken-over. Powell (1997) found that liquidity (cash and marketable securities / total assets) and free cash flow (operating cash flow / total assets) are important determinants of the likelihood of being taken-over in the periods 1984-1987 and 1988-1991. The lower the liquidity and the greater the free cash flows of the firm, the higher the take-over likelihood is. Generally speaking, acquired firms have higher liquidity than non-acquired firms but, in some cases, possessing low liquidity indicates that a firm's operating performance is poor and hence it is more open to becoming an acquisition target.

10.2.4 GROWTH

Singh (1975) found growth to be an important discriminator between acquired and surviving companies in his multivariate analysis. Acquired firms' growth is slower than that of surviving firms. Palepu (1986) showed that the coefficient of growth (average change in sales) is negative and statistically significant. This indicates that acquired firms are distinguished by their slow growth. Cosh et al. (1989) found growth (change in net assets) to be an important discriminator between acquired and acquiring firms. Acquired firms featured only sluggish growth relative to their acquirers. Harris et al. (1982), Ambrose and Megginson (1992) and Powell (1997) all found the coefficient of growth (average change in sales) to be negative indicating that acquired firms have poorer growth than non-acquired firms, but the difference between them is not significant. Overall, previous empirical studies indicate that acquired firms grow less readily than do non-acquired or acquiring ones.

10.3 METHODOLOGY

On a univariate basis, during the period 1991-95 acquiring Taiwanese firms were larger in size (total assets and net sales) than both acquired and non-transaction firms over the year prior to the transaction. Acquired firms were smaller (total assets and net sales) and displayed lower profitability (return on total assets) than acquiring and non-transaction firms over the year prior to the transaction. The higher current ratio of the acquiring firms indicates that their short-term financial position (liquidity) is healthier than that of the non-transaction firms. But high liquidity (i.e. low levels of short-term debt) may itself become a motive for take-over. It is useful to ask whether the same results hold when a multivariate analysis is conducted. In this section, I consider the firm's size (natural logarithm of total assets), profitability (return on total assets), and liquidity (current ratio) in the year prior to the transaction. I also examine whether the importance of individual variables, when analysed on a multivariate basis, differs from their significance as identified by a univariate technique. This chapter applies a logistic regression model to identify the relationship between the pre-transaction characteristics of Taiwanese enterprises over the period 1990 to 1995 and the probability of their being involved in a merger or take-over.

The posterior probability of an event occurring such that the firm will belong to the acquired or acquiring firm group is estimated as

$$\text{Prob(event)}_i = e^{Z_i} / (1+ e^{Z_i}) \text{ or } \text{Prob(event)}_i = 1 / (1+ e^{-Z_i})$$

Where $Z_i = B_0 + B_1X_{1i} + B_2X_{2i} + ... + B_PX_{Pi} + E_i$

This implies that:

$$\text{Logit(Y)} = \ln\{\text{Prob(event)} / [1 - \text{Prob(event)}]\} = B_0 + B_1X_{1i} + B_2X_{2i} + ... + B_PX_{Pi} + E_i$$

B_0, B_1, ... , B_P are coefficients estimated from financial data. X_{1i}, X_{2i}, ... , X_{Pi} are the values of the explanatory variables, E_i is the error for case i and e is the base of the natural logarithms.

Five models are considered. The first model includes three independent variables (excluding the constant)--size (natural logarithm of total assets), profitability (return on total assets) and liquidity (current ratio)--in the initial logistic regression model. I chose forced entry as my research method, setting the variables with a probability of entry at 0.05 and probability of removal at 0.10. The results detail the estimated coefficients, Wald statistic, significance level for the Wald statistic, -2 Log Likelihood, Model Chi-Square, degrees of freedom and number of cases. A positive sign on a coefficient indicates that each one-unit increase in the independent variable is associated with an increase in logit(Y), and vice versa for negative entries.

The second model extends the first model to test for the existence of a non-linear (curvilinear) relationship between the dependent and independent variables. This model encompasses the firm's size, the square of its size, profitability, the square of its profitability, liquidity, and the square of its liquidity in the year prior to the transaction. I have considered a non-linear relationship because Singh (1975) found that the probability of acquisition declines significantly with increases in firm size but for firms in the smallest size quintile within their own industry, the probability of being taken-over within a year is at its lowest. That is to say, that there is a curvilinear (non-linear) relationship between the two variables which are not identified by the earlier linear analysis.

Cosh et al. (1989) found that a change in profitability is a significant pre-merger characteristic distinguishing acquiring firms from those acquired. Singh (1975) tested the important discriminators of acquiring and acquired companies and identified that a change in profitability is significant. Palepu (1986) suggested that the coefficient of growth is statistically significant in determining the likelihood of being involved in a take-over and concludes that targets are characterised by their sluggish growth.

Powell (1997) found that size seems to be an important determinant of the likelihood of being involved in a take-over; the smaller the firm, the higher the likelihood is of being acquired, though he found that growth per se is not significant.

In view of the findings by Cosh et al., etc., the third model focuses not only on size and profitability but also on the change in size (growth) and the change in profitability among acquired, acquiring and non-transaction firms. The firm's size and profitability are calculated for the year prior to the transaction. The firm's growth (the growth percentage of total assets in year t-1) and changes in profitability are measured as follows:

Growth in assets = $[(TA_{t-1}-TA_{t-2})/TA_{t-2}]$, where TA_t = total assets in the transaction year; and,

Change in profitability = $(ROTA_{t-1}-ROTA_{t-2})$, where $ROTA_t$ = return on total assets in the transaction year.

We argue that all variables may be expected to be related to the probability that a firm may be acquired. Therefore the fourth model includes all the variables. However it is possible that high levels of collinearity may exist between these variables. The correlation matrix for those variables included in the logistic regressions is presented in Table 10-3-1. This indicates that a firm's size is strongly and positively correlated with the square of firm size ($r = 0.997$) and that profitability is also highly correlated with the square of profitability ($r = 0.857$). So these two variables, the square of firm size and the square of profitability, can be deleted and the results presented as the fifth logit model.

10.4 RESULTS

10.4.1 ACQUIRED VERSUS NON-ACQUIRED FIRMS

In the first instance, we may distinguish between acquired firms and non-acquired firms. The relationship between the logit and all the independent variables is presented

in Table 10-4-1. The Model Chi-Square values range from 21.986 to 43.672 with 3 to 8 degrees of freedom. All the Chi-Square statistics are significant at the 5% level. This indicates that we can reject the null hypothesis that the coefficients for all the terms in the logistic regression model, except the constant, are zero. We can conclude that information about the independent variables allows us to make better predictions of the dependent variable (the acquired firms) than we could make without the independent variables.

Profitability and change of profitability are statistically significant (at $\alpha = 0.05$) and have a negative sign, indicating that the lower the profitability and change of profitability of a firm the more likely it is to be acquired and vice versa, i.e. the greater the profitability and change of profitability of a firm the less likely it is to be acquired. The coefficient of liquidity (current ratio) is positive but it is significant only in the second model. The positive sign of the coefficient for liquidity implies that the greater the current ratio the more likely it is that the firm will be acquired and vice versa. Size is not statistically significant although it has the expected sign, indicating that the smaller the firm the more likely it is to be acquired.

According to the test results in Table 10-4-1, profitability and change of profitability are important determinants of the likelihood of being involved in a take-over. The results indicate that poorer profitability and a smaller change of profitability increases the probability of being taken-over. In contrast, small size does not in itself increase the probability of being taken-over. This means that less efficient firms or firms with little market power have a greater likelihood of being acquired. Less profitable managers will be replaced by more profitable managers. This implies that take-over discipline is strong for low profitability firms and for firms with a small change in their profitability but is not so influential for small firms.

The findings for the liquidity variable suggest that bidding companies prefer to acquire firms which have high current assets or low current liabilities. The square of liquidity is statistically significant (at $\alpha = 0.05$) in the second model but has a negative sign,

indicating that as a firm's liquidity increases up to a maximum point the logit value will also increase, reach a maximum, and then decrease. Using partial derivatives we can calculate the inflection (maximum) point as 18.636.[13] This indicates that when a firm's liquidity increases, so too the likelihood of it being acquired will increase; but when a firm's liquidity is very large (e.g. liquid ratio equal to 18.636), the likelihood of being acquired decreases. There are a range of possible explanations for this result: (1) Firms belonging to the same business or family group. High current ratio firms may be controlled by the same business or family group so they are relatively exempt from being taken-over. (2) Firms operating outwith the stock market or the active market. Firms with comparatively high current ratios are not listed or do not participate in an active market so potential bidding firms cannot approach their shares. (3) Government regulations or industrial requirements. The government regulates banks and other financial institutions which need to hold a high reserve ratio to ensure solvency.

These results are not consistent with the findings of Singh (1975), Palepu (1986), Ambrose and Megginson (1992) and Powell (1997). Singh's study indicates that the best discriminators during 1967-70 were change in profitability, level of profitability and growth. The coefficient of size (in terms of net book assets) and growth (in terms of average sales growth) is statistically significant, but liquidity (in terms of net liquid assets / total assets) and return on equity are insignificant in Palepu's study. Ambrose and Megginson (1992) showed that there is no significant difference between target and non-target firms in size (in terms of net book assets), growth (in terms of net sales change), average excess return, and liquidity (in terms of net liquid assets / total assets). Powell found that size (in terms of log of total assets) and liquidity (in terms of cash and marketable securities / total assets) are important but that prior performance (as measured by operating profit / capital employed and market-to-book ratio) and growth (in terms of average change in total sales) do not significantly affect the take-over likelihood of a firm.

The threat of take-over forces firms to improve their profitability and use their current asset holdings for profitable investment rather than simply to increase their size. The reorganisation or reallocation of capital resources through merger or take-over is one of the normal devices of a market economy. More profitable managers replace less profitable managers. The empirical evidence as to the nature of the take-over mechanism of acquired firms supports the traditional theory of the firm.

Table 10-4-2 shows that 1,477 to 1,837 non-acquired firms were correctly predicted by the five models, that is 99.93% to 100%. Only one to four acquired firms were correctly predicted by the models, that is 1.59% to 9.30%. The results indicate that when there are many non-acquired firms (1,478 to 1,838) and very few acquired firms (43 to 63), the former's range of size, growth, profitability and liquidity almost matches the range of the latter. According to these variables, the models predict that all (or all but one) cases are non-acquired firms. Overall, 96.05% to 97.82% of all firms were correctly classified. This compares with the proportion which would be expected to be correctly classified by chance, Cprop is 92.30% to 95.53%.[14]

10.4.2 ACQUIRED VERSUS ACQUIRING FIRMS

The next stage of the analysis was to distinguish between acquired and acquiring firms. The relationship between them in terms of size, profitability, growth and liquidity is presented in Table 10-4-3. The coefficients of Chi-Square are from 27.795 to 39.412 with 3 to 8 degrees of freedom. All the Chi-Square statistics are significant at the 5% level and indicate that we can reject the null hypothesis that the coefficients of all of the terms in the logistic regression model, except the constant, are zero.

Size is statistically significant in the first, third and fifth models and has the expected signs, indicating that the smaller the size of a firm the more likely it is to become an acquisition target rather than an acquiring firm. The coefficient of profitability has the expected sign but is not statistically significant except in the third model where it is significant only at $\alpha = 0.10$. Growth, liquidity and change in profitability are not

statistically significant, indicating that they are not important determinants of the likelihood of being acquired.

This result suggests that size is a significant variable distinguishing acquired from acquiring firms and is an important consideration in take-overs. A smaller size increases a firm's probability of becoming a target rather than an acquiring firm. This result is not consistent with Singh's (1975) finding. He found that size, followed by change in profitability and level of profitability, were the most important discriminators between acquired and acquiring firms. The result is consistent, however, with Cosh et al.'s (1989). They found that size was the most important discriminator but that profitability was not significant in discriminating between acquired and acquiring firms. The traditional theory of the firm assumes that producers aim to maximise profits; that a low profitability firm will be replaced by a high profitability firm. The empirical evidence from Taiwan about the nature of the take-over mechanism of acquired firms does not support this theory.

The finding that profitability is not a significant discriminator between acquired and acquiring firms indicates that acquiring firms' managers are no more efficient than the managers of acquired firms. It is possible that neither seek to maximise profits for their firms before the transaction.

The results indicate that acquiring firms' managers seek to increase their firms' size and to just maintain a normal or slightly improved level of profitability. Jensen and Meckling (1976)[15] considered that a problem with the separation of ownership and control arises when the shareholders of a large company assign an agent (a manager), who usually owns only a very small proportion of the total number of shares of the firm, to run the firm on their behalf. The problem is that the manager's objectives may be different from those of the shareholders. Hay and Morris (1991)[16] state that, in addition to merging inefficient firms, managers may seek other opportunities to acquire targets. Managers of acquiring companies not only value the future stream of profits which may flow from an acquisition but they also value the assets and sales of

the target firm which contribute to the well-being of the acquiring firm. Managers are interested in conglomerate mergers in particular, because this kind of transaction can provide stability of earnings and therefore increase their own job security. It is important to emphasise that managers are interested not only in profits but also in their own personal security. If two merged firms do not have perfectly correlated returns, the variance of the post-merger firm's earnings stream will decrease and hence reduce this kind of risk. Lewellen (1971)[17] also considered that mergers can decrease the risk of default because the losses of one firm can be compensated for by the income of the other.

Whilst the coefficient of profitability is not statistically significant, the square of profitability is statistically significant (but only at $\alpha = 0.10$) and has a positive sign in the second model. This indicates that as a firm's profitability increases the logit value will decrease, reach a minimum, and then increase. Using partial derivatives we can calculate the inflection (minimum) point as the value 0.04428.[18] This indicates that when a firm's profitability increases, it will decrease the likelihood that it will be targeted for acquisition; but once its profitability reaches 0.04428, the likelihood of it being an acquired firm rather than an acquirer will increase. This result suggests that: (1) A low profitability company has a greater likelihood of being acquired. (2) When a less efficient company improves its operating performance, the likelihood of it being acquired decreases. (3) When a company's profitability increases beyond 4.428%, the likelihood of it being acquired increases.

Table 10-4-4 shows that 88 to 111 acquiring firms were correctly predicted by the five models, that is 89.43% to 95.74%. Similarly, 18 to 28 acquired firms were correctly predicted by the models, that is 41.86% to 46.51%. Overall, 73.86% to 80.29% of all firms were correctly classified. This compares with a proportion which would be expected to be correctly classified by chance (Cprop) of 55.20% to 56.93%.[19]

10.4.3 ACQUIRED VERSUS NON-TRANSACTION FIRMS

My analysis also distinguishes between acquired firms and non-transaction firms. The relationship between being an acquired rather than a non-transaction firm and the explanatory variables is presented in Table 10-4-5. The coefficients of Chi-Square are from 21.406 to 46.929 with 3 to 8 degrees of freedom. All the Chi-Square statistics are significant. This indicates that we can reject the null hypothesis that the coefficients of all of the terms in the logistic regression model, except the constant, are zero.

Profitability (return on total assets) and change of profitability are statistically significant (at $\alpha = 0.05$) and have a negative sign in all models, indicating that the lower the profitability and change of profitability of a firm, the more likely it is to be acquired rather than to be uninvolved in a transaction. The coefficient of liquidity (current ratio) has a positive sign and is significant except in the first model. The positive sign of the current ratio implies that when the current ratio increases, the probability of a firm becoming a take-over target increases. The coefficient of size has a negative sign but is not significant. These results are similar to those found for acquired and non-acquired firms. They indicate that lower profitability, change of profitability and greater liquidity significantly increase the probability of being taken over but that firm size does not.

The discipline of the merger or take-over mechanism forces firms to improve their profitability and deploy their current assets in advantageous investments. Take-overs appear to restrict the power of managers to pursue their own self-interest at the expense of shareholders interests. Managers with inferior operating skills can be replaced by managers who will efficiently deploy the firm's resources no matter what size it is. This supports the traditional theory of the firm, that is, that managers are constrained to pursue profit maximisation.

The coefficient of liquidity (current ratio) has a positive sign and is significant. The square of liquidity, is statistically significant in the second model but has a negative sign, indicating that as a firm's liquidity increases up to a maximum point the logit value will increase, reach a maximum, and then decrease. Using partial derivatives we

can calculate that the value of the liquidity ratio at which the probability of being acquired is at a maximum is 19.458.[20] This indicates that when a firm's liquidity increases, so too will its likelihood of being acquired; but when a firm's liquidity is very large (e.g. liquid ratio above 19.458), the likelihood of being acquired decreases. These results suggest that: (1) Less efficient companies or firms with high current assets / current liabilities have a greater likelihood of being acquired than have more efficient or less liquid firms. (2) When a company increases its current ratio (within a realistic range), the likelihood of being acquired increases. (3) When a company's liquidity increases beyond the very high level of 19.458, the likelihood of acquisition decreases. The most likely interpretation of these results mirror those suggested in Section 10.4.1. (a) Firms with a greater current ratio are controlled by the same business / family group so they are relatively immune from being taken-over. (b) In the case of highly liquid firms which are not listed companies, potential bidding firms simply do not have the access to acquire their shares. (c) Government regulations or industrial requirements on banks or financial institution demand that they retain comparatively high current assets to ensure their solvency.

Table 10-4-6 shows that between 1,382 and 1,743 out of 1,384 and 1,744 non-transaction firms respectively were correctly predicted by the five models, i.e. between 99.86% and 100%. Only one to six acquired firms were correctly predicted by the models, that is, 1.59% to 13.95%. The reason for this is the same as was previously mentioned in Table 10-4-2. There are so many non-transaction firms (1,384 or 1,744) and so very few acquired firms (43 or 63), that the former's range of size, growth, profitability and liquidity covers almost all those of the latter. Using these variables, the models predict that all, or all but one or two, cases are non-acquired firms. Overall, 95.65% to 97.82% of all firms were correctly classified. This compares with a proportion which would be expected to be correctly classified by chance (Cprop) of 91.67% to 95.30%.[21]

10.4.4 ACQUIRING VERSUS NON-TRANSACTION FIRMS

Finally, we distinguish between acquiring and non-transaction firms. The estimated relationship between being an acquirer and a non-transaction firm is presented in Table 10-4-7. The values of Chi-Square range from 48.661 to 98.078 with between 3 and 8 degrees of freedom. All the Chi-Square statistics are significant. This indicates that we can reject the null hypothesis that the coefficients for all of the terms in the logistic regression model, except the constant, are zero.

As shown in Table 10-4-7, size and growth are statistically significant and have a positive sign in all models indicating that the greater the size and the faster the growth of a firm the more likely it is to become an acquiring firm rather than be uninvolved in a transaction. The coefficient on profitability is negative (in four out of the five models) and not significant except in the second model in which the significance level is only at $\alpha = 0.10$. The coefficient of change in profitability is significant and has a negative sign. The negative sign of profitability and change in profitability indicates that the profitability of acquirers is lower than that of non-transaction firms. Liquidity is statistically significant and has a positive sign, indicating that acquiring firms are likely to display a greater current assets / current liabilities ratio than do non-transaction firms.

These results indicate that: (1) Large firms are more likely to merge with or take-over another firm. (2) Acquiring firms, on average, enjoy a higher growth rate than do non-transaction firms before the merger or take-over. (3) Acquiring firms' managers are no more efficient than the managers of non-transaction firm nor do they seek to maximise profits for their firms before the transaction. (4) Acquiring firms usually process more current assets than do non-transaction firms. This may imply that large companies often soak up their excess current assets by acquiring other companies.

Why do acquiring firms' managers seek to expand their firms' size and growth and yet remain content with sustaining ordinary profitability? Hay and Morris (1991)[22] state that if there are too few constraints upon managers, they may only pursue their own objectives and this leads to just one merger motive, the 'managerial take-over'.

Jensen and Meckling (1976) consider that a problem arises when the shareholders of a large company assign an agent (manager), who usually owns only a very small fraction of the firm's shares, to run the company on their behalf but the agent does not perform in exactly the way the shareholders would like. This kind of partial ownership may cause managers to work less actively and energetically, and their objectives may differ from shareholders' desires to pursue profit maximisation. Winter (1964)[23] has argued that stockholders only have very limited control over the choice of senior managers and no direct control at all over the operations of the firm. Managing Directors, who have the power to manage the operations of the firm, have goals that may transcend the focus on profits. Baumol (1959)[24] has claimed that managers salaries and security do not depend on their firms' profits but on the growth of their sales revenues. A large company's managers may long for prestige and perquisites which do not directly or uniquely relate to the firm's profits. Marris (1964)[25] assumed that managers attempt to satisfy instincts of power, dominance and prestige by setting growth as their primary objective.

The empirical evidence is consistent with the view that managers of large companies do not regard profit as a goal to be maximised, but as a constraint on their other aims. Although a critical level of profit must be demonstrated, managers' priorities are attached to maximising growth. Thus, they may deploy a firm's excess cash to acquire another company so they can enlarge the firm's size or market share rather than holding surplus cash in reserve to achieve maximum profitability. The assumption of profit maximisation underpinning the economic theory of the firm does not apply to acquiring firms.

In addition to this issue, a number of other merger motives may be at work. (1) Managers aim for power and influence. The larger the firm, the more resources the manager can use; they can command more staff and exert more influence in their industry. Such power and influence may satisfy managers' ambitions, enabling them to enjoy increased prestige in the community. (2) Managers need esteem and self-actualisation. By controlling a large firm, managers may improve their reputation and

social position. After satisfying their physiological needs (salary) and safety needs (safe job, fringe benefits and job security) they will aim to satisfy their need for esteem (recognition, status and appreciation from others) and for self-actualisation (developing their full potential, increasing their competence and becoming better people). The needs for esteem and self-actualisation can be met by their demonstrating that their companies are growing. (3) Managers must be responsive to their firms' shareholders. Shareholders are concerned not only with a firm's earnings and dividends but also with its sales and size. Economic and management magazines often rank the biggest 500 or 1000 companies according to the criteria of sales or total assets. Sales and growth are two of the most important indices of a firm's performance. Shareholders' judgement of a manager's skill depends not only on the firm's earnings but also on its sales and growth. These pressures push the managers of large firms towards maintaining normal profitability and, concurrently, towards increasing the firms' size and growth by means of take-overs. This phenomenon of acquiring firms' managers attempting to achieve a satisfactory level of profitability yet retaining a priority focus on increased size and growth suggests satisficing behaviour rather than profit maximising behaviour.

Size is statistically significant (at $\alpha = 0.05$) and has a positive sign, indicating that being large increases the probability that a firm will be an acquirer rather than remaining uninvolved in a transaction. The variable, the square of size, is statistically significant (at $\alpha = 0.10$) and has a negative sign in the fourth model, indicating that as a firm's size increases up to a maximum point the logit value will increase, reach a maximum and then decrease. Using partial derivatives we can calculate the inflection (maximum) point as the value NT$ 11,139,412,000.[26] This indicates that when the firm's size increases, so too will the likelihood of being an acquirer; but when the firm's size is very large (e.g. total assets equal to NT$ 11,139,412,000), the likelihood of being an acquiring firm decreases. This result may imply that: (1) The needs for power and privilege are not overwhelming. A very large company's managers do not need to acquire another firm to increase size and gain greater power and privilege. (2) There may be diseconomies of scale. As firm size increases, the

problems and costs of administration and co-ordination also increase; the growth in bureaucracy and agency loss may result in diseconomies of scale. (3) The Fair Trade Law forbids certain acquisition activities. If the merged firm should hold a market share of 33%, or if one of the firms participating in the combination already holds a market share of one fourth, then the Fair Trade Commission does not permit the transaction to go ahead.[27] So as a firm's size increases, so too will the likelihood of it being an acquiring firm; but when the firm's size is already very large, the chances of it being an acquirer decrease.

Table 10-4-8 shows that between 1,383 and 1,743 out of 1,384 and 1,744 non-transaction firms respectively were correctly predicted by the five models, that is between 99.93% and 100%. Only zero to eight acquiring firms were correctly predicted by the models, that is 0% to 8.42%. Overall, 91.71% to 95.16% of all firms were correctly classified. This compares with the proportion which would be expected to be correctly classified by chance (Cprop) of 84.91% to 90.20%.[28]

10.5 CONCLUSION

On the whole, the results of the multivariate analyses are supportive of the univariate findings. The smaller the profitability and the greater the liquidity of a firm the more likely it is to be an acquired firm. The greater the size and liquidity of the firm the more likely it is to be an acquiring firm.

Multivariate analysis offers us a tool for understanding the differences among acquired, acquiring and non-transaction firms when an individual variable changes but the others remain constant. The traditional theory of the firm assumes that producers aim to maximise profits, regardless of whether the market structure is a monopoly or perfect competition. Previous empirical studies do not suggest that the take-over phenomenon can be statistically explained in terms of the classical model premised solely on profit maximisation.

In this study, all the Chi-Square statistics are significant at the 5% significance level. This indicates that we can reject the null hypothesis that the coefficients for all of the terms in the logistic regression model, except the constant, are zero. We conclude that information about the independent variables allows us to make better predictions of the dependent variable i.e. the acquired firms in the Section 10.4.1, 10.4.2 and 10.4.3 and the acquiring firms in the Section 10.4.4, than we could make without the independent variables. The correct prediction rate in identifying acquired from non-acquired or non-transaction firms, or acquiring from non-transaction firms ranges from 91.71% to 97.82%. The highest correct prediction rate for identifying acquired from acquiring firms is found in the third model with 80.29% accuracy.

The results indicate that profitability and change in profitability are important variables for discriminating between acquired and non-acquired firms and between acquired and non-transaction firms. The results mean that firms with lower profitability have a significantly increased probability of being taken-over, but that smaller firms do not meet a significant increase in the probability of their being acquired. This implies that take-over discipline is strong for low profitability firms but is not strong for small firms. This result is not consistent with the findings of Singh (1975), Palepu (1986), Ambrose and Megginson (1992) or Powell (1997). The take-over threat forces firms to improve their profitability rather than to increase their size. The reorganisation or reallocation of resources through merger or take-over is one of the normal devices of a market economy. The empirical evidence as to the nature of the take-over mechanism of acquired firms supports the traditional theory of the firm.

Table 10-4-3 shows that size is an important variable for distinguishing between acquired and acquiring firms in the first, third and fifth models. This indicates that the smaller the firm, the greater the likelihood of being taken-over. This result is not consistent with Singh's (1975) finding but is consistent, however, with Cosh et al.'s (1989).

Size and growth are important variables in distinguishing between acquiring and non-transaction firms. Acquiring firms are significantly larger and grow faster than do non-transaction firms but their profitability need not differ. This indicates that acquiring firms' managers tend to pursue growth rather than profitability. This emphasis on growth rather than profit maximisation may enable managers to enjoy greater power and influence in the company, to earn social prestige and achieve self-actualisation, and to satisfy shareholders' needs. This phenomenon of acquiring firms' managers sustaining normal levels of profitability while prioritising growth is evidence of satisficing behaviour.

The second model extends the first model to test the existence of a non-linear (curvilinear) relationship between the dependent and independent variables. The results indicate that curvilinear characteristics exist between acquired and non-acquired firms and between acquired and non-transaction firms, especially with regard to liquidity. This indicates that as a firm's liquidity increases, so too does the likelihood of it being acquired. However when a firm's liquidity reaches a large value, the likelihood of being acquired decreases.

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[9] The excess stock return on a firm is calculated using a market model and daily stock return data and is averaged over a period of four years. See Palepu, K. G., "Predicting Take-over Targets: A Methodological and Empirical Analysis", Journal of Accounting and Economics, 8, 1986, p. 16.
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[13] Log [Prob.(acquired firm)/1- Prob.(acquired firm)]
= 1.318 - 0.625 Size + 0.018 Size^2 - 8.720 Prof. -1.186 Prof.^{2} + 0.410 Liq. - 0.011 Liq.^{2}
$\Rightarrow \partial p / \partial$(Liq.) = 0.410 - 0.022 Liq. = 0
for a maximum or minimum
$\Rightarrow$ Liq. = 18.636
Also $\partial^2 p / \partial$ (Liq.)^2 = - 0.022 < 0 $\Rightarrow$ a maximum.

[14] Cprop = $[(1,507+0)/(1,507+0+62+1)]^2 + [(62+1)/(1,507+0+62+1)]^2 = 92.30\%$.
Cprop = $[(1,506+1)/(1,506+1+60+3)]^2 + [(60+3)/(1,506+1+60+3)]^2 = 92.30\%$.
Cprop = $[(1,837+1)/(1,837+1+40+3)]^2 + [(40+3)/(1,837+1+40+3)]^2 = 95.53\%$.
Cprop = $[(1,477+1)/(1,477+1+39+4)]^2 + [(39+4)/(1,477+1+39+4)]^2 = 94.51\%$.
Cprop = $[(1,477+1)/(1,477+1+39+4)]^2 + [(39+4)/(1,477+1+39+4)]^2 = 94.51\%$.

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[16] Hay, Donald A., and Derek J. Morris, *Industrial Economics and Organisation: Theory and Evidence*, Oxford: Oxford University Press, 1991, PP. 516-518.

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[18] Log [Prob.(acquired firm)/1- Prob.(acquired firm)]
= 20.037 - 2.538 Size + 0.070 Size^2 - 2.635 Prof. + 29.955 Prof.^{2} + 0.150 Liq. - 0.004 Liq.^{2}
$\Rightarrow \partial p / \partial$(Prof.) = -2.635 + 59.91 Prof. = 0
for a maximum or minimum
$\Rightarrow$ Prof. = 0.04428
Also $\partial^2 p / \partial$ (Prof.)^2 = 59.91 > 0 $\Rightarrow$ a minimum.

[19] Cprop = $[(110+13)/(110+13+36+27)]^2 + [(36+27)/(110+13+36+27)]^2 = 55.20\%$.
Cprop = $[(111+12)/(111+12+35+28)]^2 + [(35+28)/(111+12+35+28)]^2 = 55.20\%$.
Cprop = $[(90+4)/(90+4+23+20)]^2 + [(23+20)/(90+4+23+20)]^2 = 56.93\%$.
Cprop = $[(88+6)/(88+6+25+18)]^2 + [(25+18)/(88+6+25+18)]^2 = 56.93\%$.
Cprop = $[(88+6)/(88+6+25+18)]^2 + [(25+18)/(88+6+25+18)]^2 = 56.93\%$.

[20] Log [Prob.(acquired firm)/1- Prob.(acquired firm)]
= 0.726 - 0.585 Size + 0.018 Size^2 - 9.784 Prof. -2.803 Prof.^{2} + 0.467 Liq. - 0.012 Liq.^{2}
$\Rightarrow \partial p / \partial$(Liq.) = 0.467 - 0.024 Liq. = 0
for a maximum or minimum
$\Rightarrow$ Liq. = 19.458
Also $\partial^2 p / \partial$ (Liq.)^2 = - 0.024 < 0 $\Rightarrow$ a maximum.

[21] Cprop = $[(1,383+1)/(1,383+1+62+1)]^2 + [(62+1)/(1,383+1+62+1)]^2 = 91.67\%$.
Cprop = $[(1,382+2)/(1,382+2+60+3)]^2 + [(60+3)/(1,382+2+60+3)]^2 = 91.67\%$.
Cprop = $[(1,743+1)/(1,743+1+38+5)]^2 + [(38+5)/(1,743+1+38+5)]^2 = 95.30\%$.
Cprop = $[(1,384+0)/(1,384+0+37+6)]^2 + [(37+6)/(1,384+0+37+6)]^2 = 94.15\%$.
Cprop = $[(1,383+1)/(1,383+1+37+6)]^2 + [(37+6)/(1,383+1+37+6)]^2 = 94.15\%$.

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[26] Log [Prob.(acquiring firm)/1- Prob.(acquiring firm)]
= -29.605 + 3.375 Size - 0.104 Size^2 + 1.398 Growth - 0.141 Prof. - 4.103 Prof.^{2} - 7.297 Change in Prof. + 0.254 Liq. - 0.006 Liq.^{2}
$\Rightarrow \partial p / \partial$(Size) = 3.375 - 0.208 Size = 0
for a maximum or minimum
$\Rightarrow$ Size = 16.226
Also $\partial^2 p / \partial$ (Size)^2 = - 0.208 < 0 $\Rightarrow$ a maximum

$Ln(16.226)^{-1} = 11,139,412$

[27] Article 11 of the Fair Trade Law.

[28] $Cprop = [(1,383+1)/(1,383+1+124+0)]^2 + [(124+0)/(1,383+1+124+0)]^2 = 84.91\%$.
$Cprop = [(1,384+0)/(1,384+0+120+4)]^2 + [(120+4)/(1,384+0+120+4)]^2 = 84.91\%$.
$Cprop = [(1,743+1)/(1,743+1+88+7)]^2 + [(88+7)/(1,743+1+88+7)]^2 = 90.20\%$.
$Cprop = [(1,383+1)/(1,383+1+88+7)]^2 + [(88+7)/(1,383+1+88+7)]^2 = 87.98\%$.
$Cprop = [(1,383+1)/(1,383+1+87+8)]^2 + [(87+8)/(1,383+1+87+8)]^2 = 87.98\%$.

CHAPTER 11

CONCLUSIONS

The primary purpose of this study is to advance previous empirical work by means of a comprehensive questionnaire survey and by the analysis of financial data relating to a large sample of companies involved in mergers and take-overs. The aim is to examine merger motives and methods of payment and to compare the pre- and post-transaction performance of Taiwanese enterprises. The samples of mergers and acquisitions in Taiwan which are analysed in this study are relatively comprehensive and are the largest which have ever been collected for academic research. This research yields several insights into the motives and effects of mergers and acquisitions in Taiwan and the conclusions of this study have much greater validity than those found in previous work carried out on Taiwanese mergers. In this chapter, a summary of the findings of the research is first presented. This is followed in Section 2 by a discussion on the limitations of the research. Finally, Section 3 presents some suggestions for future research.

11.1 CONCLUSIONS OF THE RESEARCH

11.1.1 THE GENERAL CHARACTERISTICS OF TAIWANESE ACQUIRING AND ACQUIRED ENTERPRISES

1. The industry with the largest number of acquiring firms was Electrical and Electronic Machinery, Manufacturing and Repairing. The technologies involved in this industry (especially in information and semi-conductor) have advanced very quickly in recent years. This sector now needs to develop new technologies, improve production processes, increase market power, and improve their managerial efficiency in order to meet the demands of international market competition. The requirements of high technological development and high market competitiveness

may account for why this sector has had the most instances of merger and acquisition in Taiwan from 1990 to 1995.

2. The largest and smallest number of merger and take-overs cases occurred in 1995 and in 1990 respectively. There has been an upward trend in their frequency in Taiwan since 1990. The numbers indicate that mergers and take-overs are growing and have considerable significance and importance.

3. Most merger and acquisition activity in Taiwan occurs within the same business group. The major reasons for a high proportion of transactions occurring between members of the same business group were ease of negotiation, less managerial resistance, similar organisational culture and structure and the management can access more and better information to assess and analyse the transaction.

4. The most common type of transaction was 'merger', the combination of two or more firms to form a single firm, such that only one of the firms continues to exist after the combination. The least common was 'consolidation' where two or more firms form a single firm, such that all the firms are dissolved with the combination and a new company is incorporated instead. Government encouragement (tax benefits) and simple and cheap administrative procedures were the primary incentives for the acquiring company to choose a merger as the form of transaction. Where the acquiring company chooses consolidation as the form of taking over another company, both the acquiring and acquired companies need to liquidate their assets, repay their debts and close their companies before setting up a new company. Consolidation procedures are complicated and administrative costs are very high. This is why few companies adopt a consolidation approach.

5. The most common transaction direction for acquiring and acquired firms was horizontal. We argue that this is due to management's familiarity with the production, distribution and technology of the partner firm, such that they stand to gain most from economies on a larger production scale, from increasing market share

or market power, and from realising the special tax benefits that accompany the merger of small enterprises.

6. Most transactions were considered friendly because management is usually the owning group or the main shareholders. Most acquiring and acquired firms (85.7% of the sample) belong to the same business group, and Chinese business culture is more at ease with 'friendly negotiation' than 'hostile competition'. The leveraged buy-out or management buy-out is not popular in Taiwan as capital markets and money markets are in an early stage of development and government-controlled banks are very conservative so they cannot offer the variety of financial instruments that facilitate a high level of operating leverage.

7. Acquiring firms that did not target companies from within the same business group had larger mean assets than those which did. The result indicates that where the acquiring firm did not have a prior relationship with the target firm, the former required considerable assets (cash or stocks) to acquire the latter. In contrast, where the acquiring and acquired firms belong to the same business group, the main shareholders of both companies are the same so it is easier to agree to the transaction and the acquiring firm does not need to have large assets to pursue the merger.

8. The largest average assets pre- and post-transaction occurred when the 'acquisition of stock' by the acquiring firm took sizeable financing to purchase the target's shares (over 50% of total shares). The average size of acquiring and acquired firms was lowest when the transaction was a consolidation. When the acquiring company chooses consolidation as the form of taking over another company, the bidding and target companies separately need to liquidate their assets, repay their debts and close their companies, prior to setting up a new company. After the liquidation, the total assets of the consolidated firm are apparently reduced.

9. The largest average value of assets occurred in congeneric transactions. Horizontal transactions are subject to the Fair Trade Law so their scale cannot be very large. The

congeneric combination firms belong within the same general industry but they do not produce the same type of goods or service so the Fair Trade Commission does not forbid their combination.

10. The mean value of assets of acquiring firms pre-transaction is larger than that for acquired firms in all directions of transaction.

11.1.2 THE MOTIVES FOR MERGERS AND ACQUISITIONS

1. The most important reasons for mergers and acquisitions were reducing administrative expenses, combining complementary resources, achieving economies of scale and improving financial management efficiency. This indicates that operational synergy is a fairly important merger motive for Taiwanese enterprises. The results echo those found in previous empirical studies in Taiwan (Huang, 1977; Chang, 1980; Wu, Y. C., 1982; Lin, 1990; Wu, A. N., 1992; Yang, 1996). The least important motives were acquiring brand marks, patents or copyright technologies, controlling material resources, buying below replacement cost, and diversifying risk. The results indicate that the economies of vertical integration, buying below replacement cost and diversification are not important merger motives for Taiwanese enterprises between 1990 and 1995.

2. This study's relatively large sample and its in-depth analysis resolve some of the puzzling features of tax and stock market considerations as they relate to Taiwanese enterprises. The findings indicate that the merger motives of either gaining a listing on the stock market or tax considerations were very important for only a few companies in Taiwan in the 1990s. The majority of firms did not claim the primacy of these motives. This confirm previous empirical studies which have indicated that tax considerations and/or applying for a listing on the stock market are not statistically significant merger motives for Taiwanese enterprises.

3. The relative importance of different motives varies with the size of the acquiring firms. The four subgroups identified by this study, classified by the size of their total assets before the transaction, provide further information about the merger motives of differently sized acquiring firms. In brief, aiding operational synergy was a very important merger motive for firms of all sizes. Large enterprises were additionally motivated to take-over other firms by the market competitiveness and market power.

4. The motive of increasing corporate debt capacity was more important for small acquiring enterprises than for large ones. These results are similar to those found in previous studies (Teng and Chen, 1979; Liao, 1985; Liu, 1993; Li, Chen, and Chang, 1993) i.e. that small acquiring enterprises encounter relatively greater financing problems than do large companies. Although the Statute for Development of Medium and Small Business is intended to help provide financial facilities, loans and guarantees to medium and small businesses, such businesses still face significant financial hurdles. This indicates that the Statute for Development of Medium and Small Business is not completely successful in meeting its aims.

5. The government set up five requirements for companies applying for a listing on the stock market. The company must be in existence for over five years, paid-in capital exceed NT$ 200,000,000, good profitability and capital structure and dispersion of shareholdings. The business public believe that if a company can meet the approval criteria laid down by the government, then the operating performance of that company must be very good. When the company issues its shares on the stock market, the share value increases quickly.

6. Where both the acquiring and acquired firm belong to the same business group, the acquiring firm is significantly motivated by the wish to achieve operating synergy, to realise tax advantages, to use free cash flow and to improve management efficiencies. The results indicate that when firms belong to the same business group, they may have access to more and better information to accurately assess the merger's advantages. If

they find the transaction is beneficial for themselves and/or their target, they go ahead with the deal.

7. The merger motives underpinning horizontal transactions are mainly to achieve operational and financial synergies, to increase market power and to improve management efficiency. The goals behind vertical transactions are the desire to gain operational and financial synergies, to apply for a listing on the stock market, to realise tax advantages and to improve management efficiency. In congeneric transactions, firms are chiefly motivated by an aspiration for operational synergy, market power and improved purchasing management efficiency. Risk diversification was of overriding importance as a motive for conglomerate transactions between 1990 and 1995.

8. When the total pre-transaction assets of acquiring enterprises are larger, the merger motives of applying for a listing on the stock market is of greatest importance. This finding verifies the hypothesis of many Taiwanese economists and managers and resolves the puzzle that large firms merge with others so as to garner sufficient capital stock (i.e. at least NT$ 200,000,000) to enable the combined firm to apply for a listing on the stock market. When the total pre-transaction assets of acquiring enterprises are smaller, the motives of resolving financial difficulties, increasing corporate debt capacity or financing and improving marketing management efficiency assumes dominance. This indicates that the merger motives of the smaller acquiring firms focus on improving financial and operational problems.

9. The greater the increase in assets after a merger or acquisition the more important are the motives of economies of scale, reducing administrative expense and application for a listing on the stock market. A large increase in the assets of the acquiring firm after a merger or acquisition also verifies the hypothesis that applying for a listing on the stock market is sometimes extremely relevant and sometimes immaterial, depending on the acquiring firm's asset size.

10. Using factor analysis we conclude that improving management efficiency, market control and new product introduction, finance and stock market considerations are important factors which affect acquisition decisions. These factors were not consistent with Fang's (1990), Lin's (1990) and Yang's (1996) results.

11.1.3 THE MAIN METHOD OF PAYMENT FOR MERGERS AND ACQUISITIONS

1. Payment is made either by means of a cash offer or by an exchange of shares depending on three considerations. The first is tax and government regulations. The second is the future prospects of the acquiring enterprise as perceived by the acquired firm's shareholders. The third is the level of activity of the stock market. If a transaction involves equity securities, capital gains taxes may be deferred until the new securities are sold, while for cash transactions, all relevant income tax must be paid in the year of the transaction (Article 14 of Income Tax Law). Under Taiwan's tax code, if the acquiring firm pays by means of a cash offer, it can increase the tax basis of the acquired firm's assets to its fair market value and levy depreciation charges on this new basis. This step-up generates higher tax-deductible depreciation allowances which are not available for all-stock bids. The interest payments on the debt can be deducted from the enterprise's income tax (Article 30 of Income Tax Law). Acquiring firms' management use cash when they believe that the stock of their firm is undervalued relative to its perceived value (Hansen, 1987; and Brown and Ryngaert, 1989). The stock market entered a bull phase in 1988 in Taiwan, the acquired enterprise's shareholders may prefer to accept stock and the acquiring firm can afford to haggle over the amount of stock it offers.

2. The average pre-transaction assets of acquiring firms which use common stock as the main method of payment were significantly greater than those of acquirers which use cash from reserves. This finding may imply that the dispersal of shares in large firms may already be substantial such that the acquiring firm's managers are not afraid to issue new shares to the acquired firm and the acquired enterprise's shareholders

perceive or predict that the large acquiring enterprise may offer their own company better future prospects. If the acquiring firm uses cash from reserves as the main payment method, then, as cash availability is limited, so the bidding firm tends to be relatively small.

3. The average change in assets of acquiring firms using common stock as the main method of payment was significantly greater than that of acquiring firms which use mainly cash from reserves or cash from borrowings. It indicates that the government-controlled banks in Taiwan do not like to offer substantial funding to acquiring firms to buy relatively large firms in order to avoid assuming too much risk. Accordingly, acquiring firms can only use a limited amount of cash from borrowings in order to merge with a smaller target. This also suggests that issuing common stock through the original shareholders or inviting the public to subscribe to shares is an important means of increasing a firm's total assets. This implies that the exchange of common stock offers greater funds to the acquiring firm in the acquisition of a new firm than does a cash offer.

4. There is a significant negative association between acquiring enterprises paying with cash from reserves and their using book value to estimate the worth of their acquired enterprises. However, there was a significant positive association between the use of cash (reserves or borrowings) to pay for the acquisition and the use of replacement cost and cash flow values to estimate the worth of the acquired enterprise. A book value estimation suggests an apparent underestimation of the value of the acquired firm such that a target firm's shareholders are not likely to accept the cash offer. In contrast, replacement cost or cash flow value estimation method are more accurate indication of acquired firm's value. In these circumstances, banks are highly likely to offer funds to bidders and the target firm's shareholders are more likely to accept the cash offer.

11.1.4 POST-TRANSACTION PERFORMANCE

1. In general, the post-transaction performances of acquiring firms are superior to their pre-transaction performances. It indicates that mergers and acquisitions can improve the acquired firm's efficiency and/or operational or financial synergy offer advantages to the combined firm. On average, large and medium-sized acquiring enterprises achieve greater increases in their post-transaction operational and financial performance than do small and small-medium sized acquiring enterprises. These results are similar to those found in a previous empirical study of Taiwan (Lin, 1990). Most of the mergers and acquisitions in Taiwan are horizontal so large enterprises are more likely than other types of merger to yield operational synergy. Large enterprises have greater capital so they are comparatively easy to enlarge their production scale and ensure more earnings per dollar of investment. In the case of financial synergy, large enterprises have better goodwill and credit so they find it comparatively easy to raise funds and increase their debt capacity, and even to gain lower interest rates from banks or the money market.

2. If firms do not belong to the same business group, acquiring firms achieve better perceived performance improvement after the transaction than those which belong to the same business group. Lin (1990) found a similar result but it was not statistically significant. If acquiring and acquired firms do not belong to the same business group, the acquiring firm is better able to replace inefficient managers, lay off unnecessary employees, and increase the market power after the transaction. The acquiring firm also needs to present its plans to its shareholders, bank or money market to obtain the funds and to explain why the proposed transaction might improve its operating performance and increase its profits. If the acquiring firm can raise the finance from the shareholders, bank or money market, this indicates that all the parties believe in the reliability and profitability of this transaction. These careful preparations and considerations mean that the acquiring firm has a better chance of achieving its goal and of improving its post-transaction performance.

3. Horizontal post-transaction performance improvements are more marked than are found with transactions of other types amongst Taiwanese enterprises. This finding is

similar to that found in previous empirical studies in Taiwan (Fang, 1990; Yang, 1996). Firms engaged in a horizontal transaction may produce the same products or offer the same services. It is easier for such firms to increase their sales or enlarge their services, to take advantage of economies of scale and to grab greater market share or market power than conglomerate or vertical transactions. The horizontal transaction firm's management are familiar with the same products, distribution channels, production techniques and organisational characteristics. These managers are more likely to be able to exploit these advantages to improve their firms' levels of profit and profit rates than are the management of other transactions' firms.

4. Applying for a listing on the stock market is an important motive for Taiwanese enterprises pursuit of merger and take-over. Such a listing can improve a firm's image and upgrade its public reputation. It becomes much easier to get debt financing and to qualify for cheaper borrowing rates. This will significantly increase the firm's sales, profits and income and result in better earnings and returns after the transaction.

5. Asset valuation was the greatest transaction process problem for acquiring firms in Taiwanese mergers and acquisitions. This result is consistent with Lin's (1990) conclusion. The value of a firm depends not only upon its cash flow amounts, but also upon the operating and financial characteristics of the acquiring firm. As a result, no single value exists for a firm. If acquiring firms did not have or just had a little asset valuation problem during the transaction process, they enjoyed significantly better post-transaction dividends per share than those of acquiring firms which had a serious asset valuation problem. The results are consistent with overestimation of acquired firms' asset values which significantly increase an acquiring firm's expenditure, decrease its earnings and then further affect its shareholders' dividends per share after the transaction.

6. The findings indicate that if an acquiring firm has serious or very serious contingent loss problems during the transaction process, the loss costs the acquiring firm dearly,

deeply damages the company's earnings and further reduces its earnings per share, dividends per share and returns on total assets after the transaction.

7. Personnel arrangements pose a considerable difficulty in Taiwanese mergers and acquisitions. If an acquiring firm cannot appropriately deploy its personnel, this may significantly damage employee or managers' morale, undermine personal or departmental communication or co-operation, lessen the company's operating efficiency and finally result in a drop in the firm's earnings, dividends and returns. The results indicate that personnel arrangements are an important issue in Taiwanese enterprises' mergers and acquisitions.

8. If acquiring firms encounter none or few problems with litigation during the transaction process, they have significantly better post-transaction net sales than acquiring firms which report serious difficulties in these areas. The result indicates that litigation problems significantly influence an acquiring firm's ability to manage its affairs, and to operate efficiency without distraction or tarnishing its reputation, all of which may affect its net sales.

9. The variable control of distribution channels is significant for profit levels and profit rates suggesting that the more control of distribution channels drives the motive to merge, the more likely it is that the acquiring firm will enjoy an improved post-transaction performance. When the acquiring firm shares its distribution channels with the target or increases them as an outcome of the merger, it can share the acquired firm's original distributors and customers to increase its net sales, get more quantity discounts from its suppliers, reduce any duplicate personnel, offices, equipment and inventory to decrease its costs and expenses after the transaction. Therefore, it is more likely to increase the acquiring firm's incomes, earnings and returns after the transaction.

10. The more important the merger motive of reducing administration expenses, the more likely it is that the acquiring firm's post-transaction performance improves. The

findings indicate that reducing administrative costs can not only result from effectively downsizing the combined company by decreasing duplicate or inefficient employees, office space and equipment, but can also increase the flexibility and adaptability of the organisation and improve personnel morale and performance, and so increase the firm's sales, income and earnings.

11. The tests showed that the more important is the motive of economies of scale, the more likely it is that the net income post-transaction performance of the acquiring firm surpasses its pre-transaction level. This is consistent with our hypothesis that large firms can arrange for the specialisation of labour or equipment which can increase productivity; the average cost of producing a commodity decreases as its output is increased; affording the overhead of research and development which may improve the quality of established products; getting quantity discounts from their suppliers; having better goodwill and credit so they find it relatively easy to raise funds and even to acquire lower rates from banks or the money market.

12. Gaining rapid entry into new markets or industries significantly affects post-transaction net sales performance indicating that if a firm lacks the know-how to develop new products or does not have appropriate distribution channels to access different markets, mergers can often provide a rapid and safe way of entering new markets or industries. Through the merger, the acquiring firm can better deploy its production technology and its important distribution channels to increase its sales after the transaction.

13. The more important the motive of increased market power the more likely it is that the acquiring firm will enjoy superior net sales, gross profits, and price/earning ratio performance after the transaction. The results are consistent with the conclusions of Singh and Montgomery (1987) and Seth (1990) who found that increased market power can earn super normal profits. A firm can increase its market share after a horizontal merger. This result indicates that the combined firm can exercise its influence over the price and output in a particular market. Samuels et al. (1994)

mention that the higher the level of concentration in an industry, the greater are the levels of profit. If a firm can dictate the conditions of the sale of its product, has the ability to act as a price leader, can deter other firms' entry, or is able to make persistently super-normal profits, then it is highly likely to increase its sales, profits and its price/earning ratio performance after the transaction.

14. The results suggest that the less important acquiring brand marks, patents or copyright technologies and combining complementary resources are as merger motives, the more likely it is that the acquiring firm will achieve a superior post-transaction operating income performance. This is counter to our expectation. The results indicate that when the acquiring firm wishes to exploit the brand marks, patents or copyright technologies of the acquired firm, it does not achieve its expected gains. Sales and administrative expenses and/or research and development costs may increase rather than decrease and so result in poorer operating incomes. The same outcome may be experienced by the acquiring firm when its motive is to combine complementary resources but it cannot achieve its expected goal. This may result from an over-optimism in evaluating the merger's advantages and/or an overestimation of the value of the brand marks, patents or copyright technologies and of combining complementary resources. Roll (1986) points out that if there are no gains in acquisition, hubris provides an explanation as to why managers do not abandon these acquisitions or reflect on why their bids' valuation are wrong. The managers of acquiring firms using cash flow for acquisition commit an over-optimistic error in assessing the merger opportunity due to excessive pride or hubris.

15. Government encouragement or support is an important factor which can encourage companies to merge or consolidate (exempt from all income tax, stamp tax and deed tax and with a deferment of the land-value increment tax); to purchase new instruments, machinery and equipment (for exclusive use in research and development, energy saving, or to meet the requirements for adjusting the industrial structure which may be accelerated depreciation by two years or by one half of the number of years of the service life of the fixed assets); to backdate net operating losses

(the combined firm can absorb the acquiring firm's net operating losses backward to five years) and to apply for a listing on the stock market. These government encouragements are more likely to decrease the acquiring firm's expenses, increase dividends per share and returns on total assets after the transaction.

16. We find that the more important is the motive of buying below replacement cost, the less likely is improved post-transaction net sales and gross profits performance. This is consistent with managers preferring to spend surplus cash flow on unjustified mergers, based on cheap replacement assets, rather than distribute the cash to the firm's shareholders, because they are primarily motivated to increase the size of their firms (Mueller, 1969). Jensen (1986) observes that the difference of objective between shareholders and managers is an agency problem. In this situation, the managers are more likely to overestimate the merger's advantages and/or to underestimate its disadvantages.

17. We find that when the acquiring firm, through a vertical merger, tries to control its material resources, the product scale of the material may not result in economies of scale and the firm may suffer huge inventory losses and interest expenses. It may also imply that the merger fails due to a culture clash between the two companies or that the operating performance of the acquired firm will fail to reach the acquiring firm's original superior standard so it is more likely to decrease the acquiring firm's net income, earnings and returns after the transaction.

18. If an acquiring firm borrows cash from the bank as its main payment method for the acquisition, it is more likely to improve its operating income, net income and earnings per share after the transaction. The possible explanations for this might be: (1) the interest expenses are deductible from a company's earnings. (2) following a presentation of plans to the shareholders or bank and their approval of the scheme, it is not only the acquiring firm's managers who believe in the transaction but the shareholders and bankers also have faith in its reliability and profitability. These deductible interest expenses and deliberate preparations and considerations increase

the chances that the acquiring firm will achieve its goal of better incomes and earnings per share after the transaction. This conclusion is similar to those conclusions of Wansley et al. (1983) who find that cash offers yield higher abnormal returns than do stock offers after the transaction. Myers and Majluf (1984) consider that the method of financing an investment implies certain tacit information. When the acquiring firm uses debt to finance a new investment, it may imply that the bidding managers consider their common stock to be undervalued and this can cause the returns to bidders to be positive.

19. The study shows that when an acquiring firm uses replacement cost value as the method of valuing its target, it increases the likelihood of higher earnings per share and dividends per share after the transaction. This may indicate that when the acquiring firm uses replacement cost value, i.e. assets are valued at their current cost instead of their historical cost, to value the acquired firm, the acquiring firm can benefit from the relatively high depreciation of the acquired firm's assets. The acquiring firm can enlarge the tax basis of the target firm's assets to their fair market value and take advantage of depreciation charges through this method. The expansion of the tax basis of the target's assets may release a greater cash flow and result in an increase of the acquiring firm's earnings and dividends after the transaction.

20. We also conclude that if the acquiring firm has a better net sales pre-transaction performance relative to that of the acquired firm, the profit rate of the acquiring firm will increase. The explanation for this is that the more efficient managers of the acquiring firm will deploy their extra managerial resources to the acquired firm after the transaction, such that the acquired firm's operational performance will improve and the combined firm will yield a superior post-transaction operating income performance.

21. If an acquiring firm does not encounter customer drain problem in the transaction process or if the problem is slight, the probability of an improved operating income performance after the transaction increases. One explanation for this is that the firm

does not need to spend heavily on advertising to promote its ideas, goods or services to keep its customers and this increases the probability of a better post-transaction operating income performance.

22. If an acquiring firm meets a serious government regulation problem in the transaction process, the probability of the firm having a superior net sales and operating income post-transaction performance is increased. This is consistent with the argument that if an acquiring firm needs to comply with government regulations to apply for a listing on the stock market, to enjoy a tax exemption or deferment (merger or consolidation), to gain from accelerated depreciation and to earn tax credit (the combined firm can absorb the acquiring firm's net operating loss backwards for up to five years), etc., and can finally conform with these regulations' requirements, then it can enjoy tax benefits or listing advantages. These changes, in turn, improve the firm's public image and reputation and are more likely to lead to better net sales and operating incomes after the transaction.

11.1.5 PRE-TRANSACTION SIZE AND PERFORMANCE COMPARISON

1. The results of logit analysis indicate that profitability and changes in profitability are important variables for discriminating between acquired and non-acquired firms. The findings mean that firms with lower profitability have a significantly increased probability of being taken-over, but that smaller firms do not see a significant increase in the likelihood of being acquired. This implies that take-over discipline is strong for low profitability firms but is not strong for small firms. The take-over threat forces firms to improve their profitability rather than to increase their size. The empirical evidence as to the nature of the take-over mechanism of acquired firms supports the traditional theory of the firm.

2. The findings of multivariate analysis suggest that size is a significant variable in identifying acquired from acquiring firms and is an important consideration in predicting take-over activity. Smaller size increases a firm's probability of becoming a

target rather than an acquiring firm. This result is not consistent with Singh's (1975) findings but is consistent, however, with Cosh et al.'s study (1989).

3. Size and growth are important variables in distinguishing between acquiring and non-transaction firms. Acquiring firms are larger and grow faster than do non-transaction firms although their profitability is not noticeably different. This indicates that an acquiring firm's managers tend to pursue growth rather than profitability. This, in turn, may imply that the managers of acquiring firms prefer to garner greater power and influence in the company; to earn social prestige; to achieve self-actualisation; and to satisfy shareholders' needs rather than to increase profits. This phenomenon of managerial behaviour whereby they attempt to achieve a normal level of profitability but prioritise their companies' size and growth rate resembles the satisficing behaviour identified by organisational theorists such as Marris (1964) and Baumol (1959).

4. The findings indicate that as a firm's liquidity increases, the likelihood of it being targeted for acquisition increases, but when a firm's liquidity becomes sufficiently great, the likelihood of it being acquired starts to diminish. The possible explanations for this result: (1) high current ratio firms may be controlled by the same business or family group so they are relatively exempt from being taken-over. (2) firms with comparatively high current ratios are not listed or do not participate in an active market so potential bidding firms cannot approach their shares. (3) the government regulates banks and other financial institutions which need to hold a high reserve ratio to ensure solvency.

11.2 LIMITATIONS OF THE RESEARCH

There are a number of limitations which must be borne in mind when interpreting the results.

1. The limitation of data resources.

It is very difficult to collect merger cases from any source other than the government. The government could only identify 3 merger cases which were transacted prior to 1990. The private data centre which I accessed only collects limited data (e.g. publicly issued companies' financial statements) and, except for large and important cases, newspapers do not report merger events. In consequence we are restricted to 1990-1995 as our study period.

2. Very few listed companies.

There were only 17 transactions involving listed companies in Taiwan over the period 1990 to 1995. This is too small a sample to permit generalisations about the effects of mergers and acquisitions in Taiwan, so no further analysis of the listed companies' data has been carried out.

3. The limitations of questionnaires and their related measurement scales.

Owing to the difficulty of collecting financial statements and of teasing out the relevant merger information from available financial data, postal questionnaires were used as the primary research instrument. This method carries its own hazards. For example, some questions, such as the importance of merger motives, are posed along an ordinal scale. Respondents may differ in their personal assessment as to where they position themselves along that scale, and the comparability of their responses may be somewhat compromised. Thus, questionnaire uses five rather than seven or nine rating scales to make clear the appropriate position so as to reduce the bias or misjudgement.

4. The limitations and weakness of financial data.

The financial data for the study was collected from the Joint Credit Information Centre (JCIC) in Taiwan in August 1997. The JCIC is organised by all the banks which operate in Taipei city, i.e. it is a quasi-official organisation, which collates and distributes shared information. In general, JCIC only returns that information to its members. The quality of JCIC's data is relatively reliable but there are gaps for it does not include data relating to companies with less than NT $ 50 or 30 million capital or

to those which have not borrowed money from the banks. So these data do not include small acquiring and acquired firms.

5. Industry based comparisons.

Different industries display varying merger motives and specific operational and financial characteristics. There were few acquisitions in Taiwan between 1990 and 1995. My 245 mergers and acquisitions cases range over 40 industries, but over 60% of these industries experienced five or fewer mergers in their sector over the period of my study. Hence, I have not attempted to classify my findings in terms of sectoral comparisons.

11.3 SUGGESTIONS FOR FUTURE RESEARCH

1. To further understand how the characteristics of different industries affect mergers and acquisitions, it is necessary to conduct an industry-based comparison and analysis.

2. Questionnaires have many advantages over considering purely financial statements to learn about transaction motives. But in a small number of cases they may elicit answers which are not correct. If it was possible to collect the financial statements of all firms involved in mergers and acquisitions, the data could provide an interesting alternative basis for analysing mergers and take-overs.

3. Considering the requirements of industrial development and market competition, many large Taiwanese companies or business groups tend to want to acquire overseas enterprises. Even though there are few of these at present, this trend deserves to be observed and analysed.

Table 2-2-1 Mergers and Acquisitions Data Sources in Taiwan, ROC

	Department of Commerce MEA, ROC*	Bureau of Industrial Affairs MEA, ROC	Securities & Exchange Commission MOF, ROC	Taiwan Economic Journal Databank & Others	Subtotal
1990			8	4	12
1991	8		21	3	32
1992	22	15	12	6	55
1993	20	38	12	2	72
1994	47	49	6	9	111
1995	51	45	20	1	117
Subtotal	148	147	79	25	399

* There are 68 duplicate cases among government departments.

Sources: (1) Department of Commerce, Ministry of Economic Affairs, ROC
(2) Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC
(3) Securities and Exchange Commission, Ministry of Finance, ROC
(4) Taiwan Economic Journal Databank, Business Enterprises' Prospectuses/Annual Reports & Others

Table 3-2-1 Acquiring Enterprise's Standard Industrial Classification of Identified and Respondent Firms

Enterprise's Standard Industrial Classification	Class. code	Ident. firm (No.)	Percent	Resp. firm (No.)	Percent
Agriculture, Animal Husbandry and Hunting	1	2	.7	1	.4
Fishing	3	3	1.1	3	1.2
Quarrying	9	1	.4	1	.4
Food Products Manufacturing	11	18	6.3	16	6.5
Textile Industry	13	13	4.6	13	5.3
Wearing Apparel & Accessories Manufacturing	14	2	.7	2	.8
Leather & Fur Products Manufacturing	15	4	1.4	3	1.2
Wood Bamboo Products Manufacturing	16	1	.4	1	.4
Non-Metallic Furniture and Fixture Manufacturing	17	1	.4	1	.4
Pulp, Paper & Paper Products Manufacturing	18	3	1.1	3	1.2
Printing Processings	19	3	1.1	3	1.2
Chemical Materials Manufacturing	21	6	2.1	6	2.4
Chemical Products Manufacturing	22	13	4.6	13	5.3
Plastic Products Manufacturing	25	10	3.5	8	3.3
Non-Metallic Mineral Products Manufacturing	26	7	2.5	6	2.4
Basic Metal Industries	27	13	4.6	11	4.5
Fabricated Metal Products Manufacturing	28	8	2.8	6	2.4
Machinery & Equipment Manufacturing and Repairing	29	11	3.9	11	4.5
Electrical & Electronic Machinery Manufacturing and Repairing	31	53	18.6	43	17.6
Transport Equipment Manufacturing and Repairing	32	2	.7	2	.8
Precision Instruments Manufacturing	33	2	.7	2	.8
Miscellaneous Industrial Products Manufacturing	39	2	.7	2	.8
Electric Power Supply	41	0	0	0	0
Infrastructure Construction	45	2	.7	1	.4
Building Construction	46	10	3.5	7	2.9
Other Construction	49	0	0	0	0
Wholesale Trade	52	3	1.1	0	0
Retail Trade	55	9	3.2	9	3.7
General Retail Trade	56	2	.7	2	.8
International Trade	57	14	4.9	12	4.9
Transport	61	6	2.1	6	2.4
Storage and Warehousing	62	0	0	0	0
Financing	65	6	2.1	4	1.6
Securities & Futures	66	30	10.5	26	10.6
Real Estate	68	3	1.1	0	0
Architectural Services	72	1	.4	1	.4
Consultation Services	74	5	1.8	5	2.0
Data Processing & Information Services	75	1	.4	1	.4
Advertising Services	76	1	.4	1	.4
Designing Services	77	1	.4	1	.4
Rental & Leasing Services	78	2	.7	2	.8
Other Business Services	79	1	.4	1	.4
Sanitary and Pollution Controlling Services	81	4	1.4	4	1.6
Publishing	83	2	.7	2	.8
Entertainments	87	1	.4	1	.4
Hotel, Camps and Other Lodging Places	88	2	.7	0	0
Missing data		2	.7	2	.8
Total		286	100.0	245	100.0

Source: Questionnaire survey in Taiwan, May--July 1996

Table 3-2-2 Respondent and Expected Cases for Acquiring Enterprise Standard Industrial Classification

Standard Industrial Classification	Identified cases	Responded cases	Expected cases	Residual
Agriculture, Fishing, Mining and Quarrying	6	5	5.13	-.13
Manufacturing	172	152	147.17	4.83
Construction	12	8	10.27	-2.27
Commerce	28	23	23.96	-.96
Transport and Communication	6	6	5.13	.87
Financing, Insurance and Real Estate	38	30	32.51	-2.51
Business Services and Others	22	19	18.82	.18
Total	284	243	243.00	

Chi-Square 1.0433 D.F. 6 Significance .9839

Sources:

(1)Questionnaire Survey in Taiwan, May--July 1996

(2)Department of Commerce, Ministry of Economic Affairs, ROC

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC

(4)Securities and Exchange Commission, Ministry of Finance, ROC

Table 3-2-3 Respondent and Expected Cases for Acquired Enterprise Standard Industrial Classification

Standard Industrial Classification	Identified cases	Responded cases	Expected cases	Residual
Agriculture, Fishing, Mining and Quarrying	8	6	6.71	-.71
Manufacturing	164	142	137.64	4.36
Construction	10	6	8.39	-2.39
Commerce	25	21	20.98	.02
Transport and Communication	6	6	5.04	.96
Financing, Insurance and Real Estate	55	43	46.16	-3.16
Business Services and Others	12	11	10.07	.93
Total	280	235	235.00	

Chi-Square 1.3828 D.F. 6 Significance .9669

Sources:

(1)Questionnaire Survey in Taiwan, May--July 1996

(2)Department of Commerce, Ministry of Economic Affairs, ROC

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC

(4)Securities and Exchange Commission, Ministry of Finance, ROC

Table 3-2-4 The Number of Business Units in Taiwan in 1995--by Industry

Enterprise's Standard Industrial Classification	Classificat-ion code	Enterprise(s) (Unit)	Percent
Agriculture, Animal Husbandry and Hunting	1	1,486	.15
Fishing	3	14,833	1.50
Quarrying	9	1,578	.16
Food Products Manufacturing	11	18,097	1.82
Textile Industry	13	7,332	.74
Wearing Apparel & Accessories Manufacturing	14	3,841	.39
Leather & Fur Products Manufacturing	15	1,135	.11
Wood Bamboo Products Manufacturing	16	4,811	.48
Non-Metallic Furniture and Fixture Manufacturing	17	2,176	.22
Pulp, Paper & Paper Products Manufacturing	18	3,271	.33
Printing Processings	19	7,650	.77
Chemical Materials Manufacturing	21	1,566	.16
Chemical Products Manufacturing	22	2,086	.21
Plastic Products Manufacturing	25	13,166	1.32
Non-Metallic Mineral Products Manufacturing	26	4,554	.46
Basic Metal Industries	27	7,823	.79
Fabricated Metal Products Manufacturing	28	38,023	3.82
Machinery & Equipment Manufacturing and Repairing	29	13,421	1.35
Electrical & Electronic Machinery Manufacturing and Repairing	31	11,617	1.17
Transport Equipment Manufacturing and Repairing	32	5,135	.52
Precision Instruments Manufacturing	33	1,521	.15
Miscellaneous Industrial Products Manufacturing	39	6,155	.62
Electric Power Supply	41	574	.06
Infrastructure Construction	45	16,441	1.65
Building Construction	46	3,925	.39
Other Construction	49	9,705	.98
Wholesale Trade	52	110,415	11.10
Retail Trade	55	377,108	37.93
General Retail Trade	56	7,623	.77
International Trade	57	46,767	4.70
Transport	61	36,168	3.64
Storage and Warehousing	62	638	.06
Financing	65	5,742	.58
Securities & Futures	66	864	.09
Real Estate	68	16,572	1.67
Architectural Services	72	190	.02
Consultation Services	74	6,635	.67
Data Processing & Information Services	75	2,870	.29
Advertising Services	76	8,026	.81
Designing Services	77	2,408	.24
Rental & Leasing Services	78	7,766	.78
Other Business Services	79	3,760	.38
Sanitary and Pollution Controlling Services	81	3,544	.36
Publishing	83	2,263	.23
Entertainments	87	11,138	1.12
Hotel, Camps and Other Lodging Places	88	3,718	.37
Others		138,168	13.90
Total		994,305	100

Source: Monthly Statistics of Finance of The Republic of China, April 1996

Table 3-2-5 Statistics of Taiwanese Securities Firms

Unit: Number

Period	Securities firms			
	Securities brokers[1]	Securities brokers	Securities dealers[2]	Securities underwriters[3]
	headquarters	branches		
1982	27	29	12	21
1983	27	29	12	22
1984	27	28	12	22
1985	27	29	10	23
1986	28	29	10	23
1987	28	29	10	22
1988	102	29	18	30
1989	247	28	32	41
1990	373	30	50	60
1991	347	68	55	61
1992	331	88	54	61

Source: The major index of securities exchange market, April 1992

[1] 'a securities brokers' for a securities firm which operates the business specified in item 3 (securities brokerage or commission agency) of the preceding Article (Article 16 of Securities and Exchange Law).

[2] 'a securities dealers' for a securities firm which operates the business specified in item 2 (securities dealings) of the preceding Article (Article 16 of Securities and Exchange Law).

[3] 'a securities underwriters' for a securities firm which operates the business specified in item 1 (securities underwriting) of the preceding Article (Article 16 of Securities and Exchange Law).

Table 3-2-6 Business Units and Stocks in Taiwan

Period	Business units (number)	Listed firms* (number)	Public offering firms** (number)	Stock trading value (NT$ million)	Stock price index (1966=100)
1976		77	27	145,941	327.20
1981		107	54	209,217	551.03
1986		130	182	675,656	1,039.11
1987	771,861	141	199	2,663,633	2,135.03
1988	793,439	163	226	7,868,024	5,202.21
1989	816,488	181	319	25,407,963	8,616.14
1990	828,834	199	571	19,031,282	6,775.32
1991	863,664	221	726	9,682,738	4,928.83
1992	909,236	256	814	5,917,078	4,271.63
1993	943,232	285	863	9,056,717	4,214.78
1994	975,549	313	931	18,812,112	6,252.99
1995	994,305	347	1040	10,151,536	5,543.75

Source: Monthly Statistics of Finance of The Republic of China, April 1996
Monthly Statistics of the Republic of China, June 1997.

*An issuer of securities publicly issued under this Law may file an application with a stock exchange for listing. (Article 139 of Securities and Exchange Law)

**A company shall apply to have its shares offered to the public if its authorised capital exceeds a certain amount (NT$ 200 million) as prescribed by the competent authority provided. (Article 156 of Company Law)

Sterling Pound: New Taiwan Dollar = 1: 42 (1995)

Table 3-3-1 Respondent and Expected Cases for Transaction Year

Transaction Year	Identified cases	Responding cases	Expected cases	Residual
1990	12	12	10.12	1.88
1991	31	27	26.15	.85
1992	40	34	33.47	.26
1993	55	40	46.39	-6.39
1994	67	59	53.14	5.86
1995	80	65	67.47	-2.47
Total	285	237	237.00	

Chi-Square 1.9964 D.F. 5 Significance .8496

Sources:

(1)Questionnaire Survey in Taiwan, May--July 1996

(2)Department of Commerce, Ministry of Economic Affairs, ROC

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC

(4)Securities and Exchange Commission, Ministry of Finance, ROC

Table 3-4-1 Statistics of Transaction Enterprise by Business Group

Same Business Group	Cases	Percent
Yes	210	85.7
No	35	14.3
Total	245	100

Source: Questionnaire survey in Taiwan, May--July 1996

Table 3-5-1 Statistics of Transaction Enterprise by Forms of Merger and Acquisition

Type	Cases	Percent
Merger	217	88.6
Consolidation	4	1.6
Acquisition of Stock	14	5.7
Acquisition of Asset	10	4.1
Total	245	100

Source: Questionnaire survey in Taiwan, May--July 1996

Table 3-6-1 Statistics of Transaction Enterprise by Type of Transaction

Form of transaction	Cases	Percent
Horizontal Transaction	142	58.0
Vertical Transaction	36	14.7
Congeneric Transaction	24	9.8
Conglomerate Transaction	43	17.5
Total	245	100.0

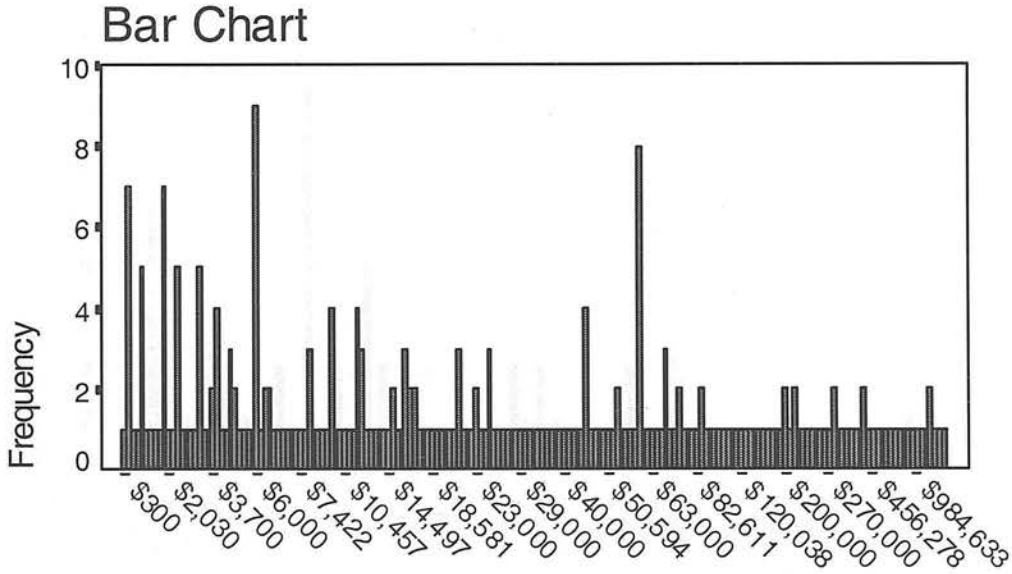
Source: Questionnaire survey in Taiwan, May--July 1996

Table 3-7-1 Statistics of Transaction Enterprise by Friendly and Hostile Bids

	Cases	Percent
Friendly Transaction	244	99.6
Hostile Transaction	1	.4
Total	245	100.0

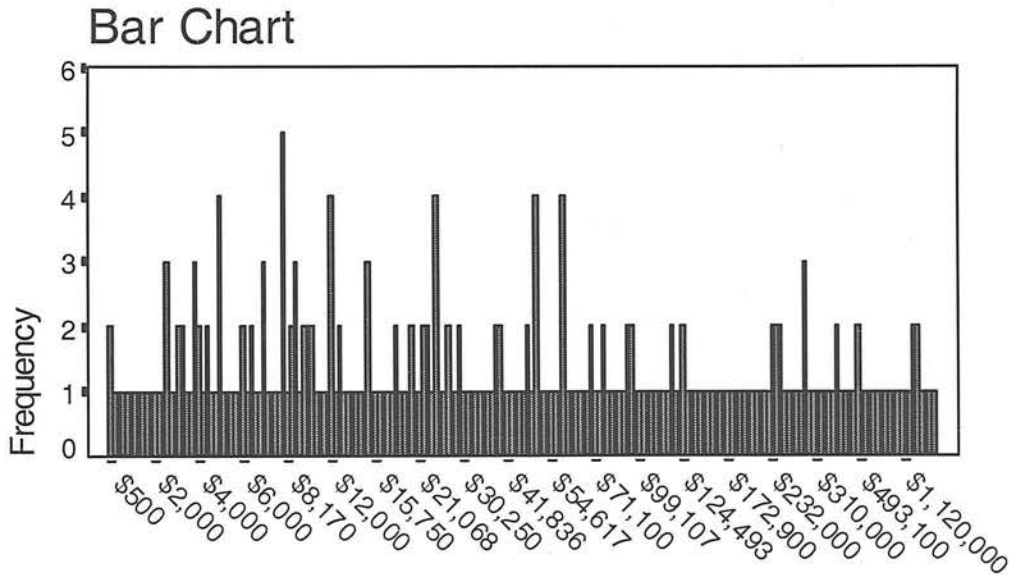
Source: Questionnaire survey in Taiwan, May--July 1996

Figure 3-8-1 Acquiring Firm's Assets Before Transaction



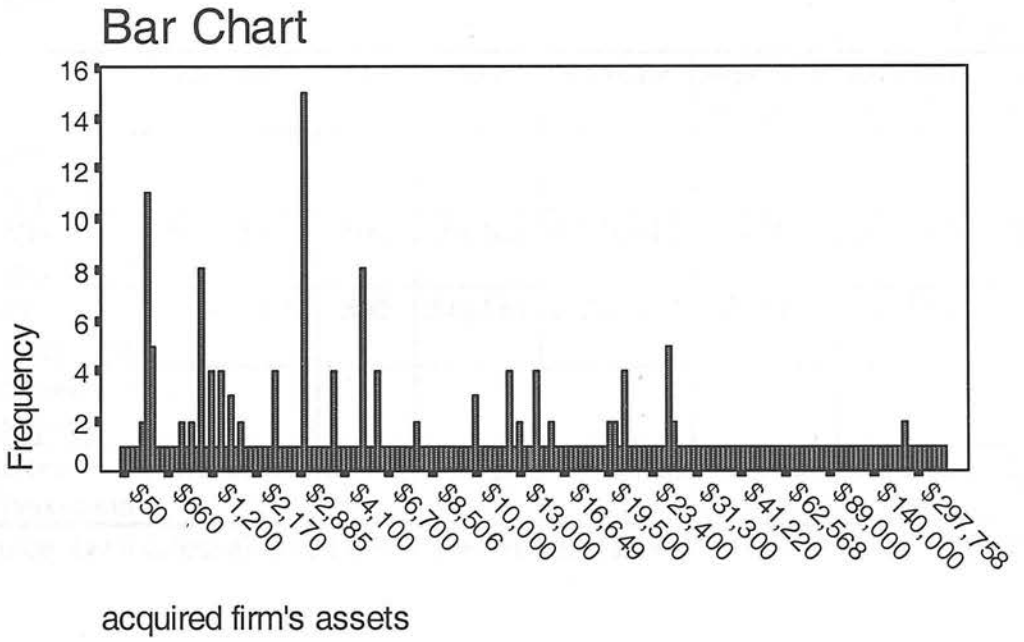
Source: Questionnaire Survey in Taiwan, May--July 1996

Figure 3-8-2 Acquiring Firm's Assets After Transaction



Source: Questionnaire Survey in Taiwan, May--July 1996

Figure 3-8-3 Acquired Firm's Assets Before Transaction



Source: Questionnaire Survey in Taiwan, May--July 1996

Table 3-8-1 Total Assets Before or After Transaction of Acquiring and Acquired Enterprises

Unit: NT$ 10,000

	Maximum	Min.	Mean	Variance	Skewness (Coef.)	Kurtosis (Coef.)	Cases (No.)
Acquiring Enterprise							
Before Transaction	34,536,240	500	291,626	5.63E+12	14.095	203.737	217
After Transaction	36,871,697	500	344,967	6.27E+12	14.146	206.521	223
Acquired Enterprise							
Before Transaction	4,118,702	50	60,616	9.44E+10	11.590	147.326	214

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 3-8-2 The Average Assets Before or After Transaction of Acquiring and Acquired Enterprises by Business Group

	Same business group	Mean (NT$ 10,000)	Std Dev (NT$ 10,000)	Cases (No.)
Acquiring Enterprise				
Before Transaction	Yes	277,754	2,515,700	189
	No	385,275	970,870	28
After Transaction	Yes	331,179	2,651,443	189
	No	440,990	1,018,366	28
Acquired Enterprise				
Before Transaction	Yes	61,867	327,984	186
	No	52,303	87,136	28

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 3-8-3 The Average Assets Before or After Transaction of Acquiring and Acquired Enterprise by Form of Transaction

	Type of transaction	Mean (NT$ 10,000)	Std Dev (NT$ 10,000)	Cases (No.)
Acquiring Enterprise				
Before Transaction	Merger	293,667	2,462,317	201
	Consolidation	3,000	4,330	3
	Acq. of stock	421,938	543,075	9
	Acq. of asset	112,447	121,319	4
After Transaction	Merger	348,591	2,608,370	205
	Consolidation	7,500	8,336	4
	Acq. of stock	496,780	603,187	10
	Acq. of asset	117,175	117,125	4
Acquired Enterprise				
Before Transaction	Merger	63,386	318,699	198
	Consolidation	2,500	2,345	4
	Acq. of stock	51,437	108,239	7
	Acq. of asset	10,263	12,612	5

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 3-8-4 The Average Assets Before or After Transaction of Acquiring and Acquired Enterprises by Type of Transaction

	Type of transaction	Mean (NT$10,000)	Std Dev (NT$10,000)	Cases (No.)
Acquiring Enterprise				
Before Transaction	Horizontal	99,507	216,769	125
	Vertical	78,049	120,591	33
	Congeneric	2,023,288	8,116,335	18
	Conglomerate	289,026	855,518	41
After Transaction	Horizontal	139,369	335,701	130
	Vertical	107,662	136,741	33
	Congeneric	2,130,761	8,417,622	19
	Conglomerate	360,301	917,053	41
Acquired Enterprise				
Before Transaction	Horizontal	40,555	156,567	127
	Vertical	27,742	39,212	30
	Congeneric	261,172	938,061	19
	Conglomerate	53,336	87,940	38

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 4-1-1 Alternative Motives or Reasons for Mergers and Acquisitions

1. Efficiency theories
   - 1.1 Differential efficiency
   - 1.2 Inefficient management
   - 1.3 Operating synergy
   - 1.4 Financial synergy
   - 1.5 Undervaluation
   - 1.6 Pure diversification
2. Information and signalling
3. Market power
4. Tax considerations
5. Stock market consideration
6. Agency problems
7. Free cash flow

Table 4-2-1 Theories and Empirical Studies of the Motives for Mergers and Acquisitions in the US

Theory/ Hypothesis	Author(s)	Research year	Sample	Variable	Results
Efficiency Theories	Chatterjee (1986)	1969-1972	157	Cumulative abnormal returns	Significant
	Shelton (1988)	1962-1983	118	Value created in merger	Significant
	Seth (1990)	1962-1979	104	Cumulative abnormal returns	Significant
Market Power	Stillman (1983)	1964-1972	11	Return on security	Not Significant
	Eckbo (1983)	1963-1978	191	Return on security	Not Significant
	Jensen (1984)	Review the results of four previous empirical studies			Not Significant
	Feinberg (1985)	1976	391	Sales-at-risk	Significant
Tax Considerations	Smirlock, Beatty, and Majd (1986)	Review the results of many previous empirical studies		1. Accelerated depreciation 2. Carryover of net operating losses 3. Carryover of R&D credits 4. Interest deductions	Significant
	Jarrell, Brickley & Netter (1988)	Review the results of many previous empirical studies			Not Significant
	Auerbach (1986)	1968-1983	318	Tax losses and credits	Not Significant
Agency Problems	Amihud & Lev (1981)	1961-1970	309	Percent of owner/ management control common stock	Significant
	Walsh (1988)	1975-1979		Turnover rate of chairman	Significant

Table 4-3-1 Theories and Empirical Studies of the Motives for Mergers and Acquisitions in Taiwan

Theory/ Hypothesis	Author(s)	Research year	Sample	Variable(s)	Results
Operational Synergy	Huang (1977)	1973-1976	31	1. Economies of scale 2. Marketing channel	Important
	Chang (1980)	1974-1979	8	1. Economies of scale 2. Growth of firm	Important
	Wu, Y. C. (1982)	1975-1980	32	Economies of scale	Important
	Wu, C. M. (1984)	1977 and 1981	2	1. Market competitiveness 2. Operating efficiency	Important
	Sung (1989)	1987	20	1. Personnel & management cost reductions 2. Technology and R&D 3. Economies of scale	Significant
	Lin (1990)	1985-1989	42	1. Profitability 2. Economies of scale	Important
	Chen, C. R. (1990)	1990	1	1. Acquiring brand mark 2. Marketing channel	Important
	Wu, A. N. (1992)	1985-1988	13	Economies of scale	Significant
	Yang (1996)	1979-1995	94	1. Operating and management modernisation 2. Economies of scale	Important
Financial Synergy	Chang (1980)	1974-1979	8	Diversification	Not Important
	Wu, Y. C. (1982)	1975-1980	32	1. Financing from bank 2. Diversification	Important
	Sung (1989)	1987	20	1. Benefits from bank 2. Diversification 3. Improving financial structure	Not Significant
	Lin (1990)	1985-1989	42	1. Debt capacity 2. Diversification	Not Important
	Yang (1996)	1979-1995	94	1. Diversification 2. Improving financial structure	1. Important 2. Fairly Important
Market Power	Huang (1977)	1973-1976	31	Market share	Not Important
	Chang (1980)	1974-1979	8	Business grow	Not Important
	Wu, Y. C. (1982)	1975-1980	32	Market share	Not Important
	Wu, C. M.	1977 and	2	Market share	Not

	(1984)	1981			Important
	Sung (1989)	1987	20	Market share	Significant
	Lin (1990)	1985-1989	42	Market share	Not Important
	Chen, C. R. (1990)	1990	1	Market share	Not Important
	Wu, A. N. (1992)	1985-1988	13	Market share	Significant
	Yang (1996)	1979-1995	94	Diversification	Important
Tax Considerations	Huang (1977)	1973-1976	31	Tax benefits	Not Important
	Chang (1980)	1974-1979	8	Tax deductions	Not Important
	Wu, Y. C. (1982)	1975-1980	32	Tax deductions or deferments	Not Important
	Sung (1989)	1987	20	Tax deductions or deferments	Not Significant
	Lin (1990)	1985-1989	42	Tax deductions	Not Important
	Wu, A. N. (1992)	1985-1988	13	Tax deductions	Not Significant
	Yang (1996)	1979-1995	94	Enjoying tax benefits regulation	Fairly Important
Stock Market Considerations	Lin (1990)	1985-1989	42	Stock on listing or counter	Not Important
	Chen, C. R. (1990)	1989	1	Stock on listing	Important
	Wu, A. N. (1992)	1985-1988	13	Date of stock on listing	Not Significant
	Yang (1996)	1979-1995	94	Stock on listing	Not Important
Agency Problems	Lin (1990)	1985-1989	42	Enterprise growth	Important
	Chen, C. R. (1990)	1989	1	1. Growth-maximisation 2. Manager's risk spreading	Not Significant
	Wu, A. N. (1992)	1985-1988	13	Share of managers	Not Significant
	Yang (1996)	1979-1995	94	Improving managers social position	Important

Remark: All the authors used questionnaires to do their research except Chen, C. R and Wu, Y. C. who look specific case studies and Wu, A. N. who used financial statements.

Table 5-2-1 Descriptive Sample Statistics of the Acquiring Enterprise's Merger and Acquisition Motives

Motive	Mean*	Variance	Cases (No.)
Reducing administrative expense	2.322	1.687	245
Combining complementary resources	2.596	2.045	245
Economies of scale	2.629	2.415	245
Improving finance management efficiency	2.800	2.284	245
Improving management efficiency generally	2.843	2.105	215
Enhancing market competitiveness	2.864	2.44	243
Increased market power	2.869	2.360	245
Improving personnel management efficiency	2.939	2.295	245
Improving marketing management efficiency	2.963	2.290	245
Control of distribution channels	3.053	2.206	245
Improving production management efficiency	3.143	2.296	244
Improving purchasing management efficiency	3.180	2.181	245
Tax considerations	3.347	2.129	245
Improving R&D management efficiency	3.381	2.097	244
Increasing corporate debt capacity or financing	3.469	1.947	245
Acquiring know-how or research and development	3.498	1.735	245
Gaining potential real estate or other related values	3.531	1.939	245
Resolving financial difficulties	3.539	2.094	245
Exploiting surplus funds	3.571	1.779	245
Applying for a listing on the stock market	3.620	1.999	245
Government encouragement or support	3.633	1.692	245
Gaining rapid entry into new markets or industries	3.642	1.751	243
Risk diversification	3.679	1.682	243
Buying below replacement cost	3.722	1.759	245
Controlling of material resources	3.748	1.808	242
Acquiring brand marks, patents or copyright technologies	3.934	1.558	243

* Coding 1 represents very important, 2 represents fairly important, 3 represents important, 4 represents slightly important, 5 represents not at all important.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-2-2 Frequency Table for Applying for a Listing on the Stock Market and Tax Considerations

Applying for a listing on the stock market			
Value Label	Value	Frequency	Percent
Very important	1	25	10.2
Fairly important	2	44	18.0
Important	3	26	10.6
Slightly important	4	54	22.0
Not at all important	5	96	39.2
Total		245	100.0
Tax Considerations			
Value Label	Value	Frequency	Percent
Very important	1	38	15.5
Fairly important	2	40	16.3
Important	3	44	18.0
Slightly important	4	45	18.4
Not at all important	5	78	31.8
Total		245	100.0

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-2-3 Tax Reductions Due to Implementation of the Statute for Encouragement of Investment or the Statute for Upgrading Industries (1990-1995)

Items	Implementation of Statute of Investment Encourage (Statute for Upgrading Industries*)	Items of Reduction	Cases (Years)	Tax Reduction Amount (Unit: NT$ 1,000)
Business Income Tax	Item 1 of Article 38 (This Tax reduction abolished of Statute for Upgrading Industries)	The profit-seeking enterprise shall be exempt from all income tax payable as a result for such merger or consolidation.	9 (1990) 1 (1991) 2 (1992)	51,350 409 6.008
	Article 40 (This Article abolished of Statute for Upgrading Industries)	The existing productive enterprises, if conforming to the production scale and criteria prescribed by the Government after a merger or consolidation, shall be entitled to a fifteen per cent (15%) deduction of the profit-seeking enterprise income tax for two years after a merger or consolidation.	6 (1990) 3 (1991) 2 (1992)	39,396 1,040 3,374
Stamp Tax	Items 1, 3, 4 of Article 38 (Items 1, 3, 4 of Article 13)	The profit-seeking enterprise shall be exempt from all stamp tax payable as a result for such merger or consolidation.	- (1990) - (1991) - (1992) - (1993) 1 (1994) 2 (1995)	- - - - 151,358 3,641
Land Value Increment Tax	Item 2 of Article 38 (Item 2 of Article 13)	Where the land previously used by these enterprises directly is transferred along with the merger or consolidation, registration shall be effected for the transfer of the ownership of the land immediately after the current value of the land has been duly assessed according to law; the land-value increment tax payable may be entered to credit and paid by the enterprise existing as a result of the merger or consolidation at the time the land is further transferred.	47 (1990) 10 (1991) 64 (1992) 200 (1993) 60 (1994) 111 (1995)	337,722 30,504 615,030 319,037 1,865,949 1,000,345
	Item 5 of Article 38 (Item 5 of Article 13)	If as a result of merger and consolidation, land previously used by these enterprises directly for factories is sold and other land is purchased for construction of plant building in another industrial district, or ..., and the area of such land is not in excess of that	1 (1990) 87 (1991) - (1992) - (1993) - (1994) - (1995)	882 362,410 - - - -

		of the original land by 300%, and the price paid for such land is in excess of the selling price of the original land after deduction of the land-value increment tax, then for such deficit amount for the purchase of the new land, the merged enterprise may request the competent authority-in-charge of tax collection to refund, to the extent of such deficit, the amount of land-value increment tax already paid.		
	Item 6 of Article 38 (Item 6 of Article 13)	The provision in the preceding Item 5 shall apply, matatis mutandis, to the case where the purchase of land for construction of factory has to be effected prior to the sale of the land of original factory in order to satisfy the needs of production operation.	- (1990) 15 (1991) - (1992) - (1993) - (1994) - (1995)	- 853 - - - -
Deed Tax	Item 1 of Article 38 (Item 1 of Article 13)	The profit-seeking enterprise shall be exempt from all deed tax payable as a result for such merger or consolidation.	24 (1990) 32 (1991) 34 (1992) 20 (1993) 22 (1994) 43 (1995)	9,585 14,374 48,761 60,977 10,130 10,961
	Item 4 of Article 38 (Item 4 of Article 13)	Where the land and plant buildings previously used by these enterprises directly for factories and/or mining are sold in accordance with the approved merger and consolidation plan, the proceeds so realised from the sale, being used or deducted for payment in whole for purchase or acquisition of new land and plant buildings under the merger and consolidation plan, shall be exempt from any deed tax payable by the merged enterprise.	6 (1990) 1 (1991) 1 (1992)	3,522 5 356

* Promulgated on December 29, 1990.

Sources: Yearbook of financial statistics of the Republic of China, 1990, 1991, 1992, 1993, 1994,1995.

Table 5-3-1 The Size Groups of the Acquiring Enterprises

Size group	Description	Total assets before the transaction	Cases	Per cent
1	Small Acquiring Enterprises X_1	Less than NT$ 100 million	77	35.5
2	Small-Medium Acquiring Enterprises X_2	Greater than or equal NT$ 100 million but less than NT$ 200 million	35	16.1
3	Medium Acquiring Enterprises X_3	Greater than or equal NT$ 200 million but less than NT$ 1,000 million	55	25.4
4	Large Acquiring Enterprises X_4	Greater than or equal NT$ 1,000 million	50	23.0
Total			217	100

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-3-2 Descriptive Four Subgroup Sample Statistics of the Acquiring Enterprise's Merger and Acquisition Motives

Motive	X_1* (means)	X_2* (means)	X_3* (means)	X_4* (means)	T-test 2-tail Sig. (α=.05)	T-test 2-tail Sig. (α=.10)	U-test 2-tail Sig. (α=.05)	U-test 2-tail Sig. (α=.10)
Subgroup number of cases	77	35	55	50				
Economies of scale	2.779	3.000	2.418	2.640		$x_2>x_3$		$x_2>x_3$
Control of distribution channels	2.961	3.257	3.236	3.140				
Reducing administrative expense	2.259	2.257	2.290	2.220				
Acquiring know-how or research and development	3.363	3.657	3.563	3.580				
Acquiring brand marks, patents or copyright technologies	3.831	3.942	4.000	4.160				
Enhancing market competitiveness	2.779	3.371	2.849	2.880		$x_1<x_2$	$x_1<x_2$	$x_3<x_2$
Gaining rapid entry into new markets or industries	3.610	3.914	3.566	3.760				
Controlling of material resources	3.545	3.628	3.692	4.000		$x_1<x_4$		
Combining complementary resources	2.545	2.314	2.472	2.620				
Resolving financial difficulties	3.194	3.200	3.763	3.800	$x_1<x_3$ $x_1<x_4$	$x_2<x_3$ $x_2<x_4$	$x_1<x_4$	$x_1<x_3$ $x_2<x_4$
Increasing corporate debt capacity or financing	3.181	3.457	3.509	3.840	$x_1<x_4$		$x_1<x_4$	
Risk diversification	3.532	3.657	3.717	3.660				
Increased market power	2.883	3.400	2.890	2.920				$x_1<x_2$
Applying for a listing on the stock market	4.051	3.657	3.218	3.440	$x_1>x_3$ $x_1>x_4$		$x_1>x_3$ $x_1>x_4$	$x2>x_3$
Tax considerations	3.363	3.085	3.236	3.460				
Government encouragement or support	3.636	3.800	3.509	3.660				
Exploiting surplus funds	3.623	3.457	3.545	3.620				
Buying below replacement cost	3.636	3.800	3.690	3.820				
Gaining potential real estate or other related values	3.610	3.285	3.436	3.620				
Improving management	2.484	2.806	2.723	3.204	$x_1<x_4$		$x_1<x_4$	$x_3<x_4$

efficiency generally								
Improving marketing management efficiency	2.610	3.085	2.927	3.280	$X_1<X_4$		$X_1<X_4$	$X_1<X_2$
Improving production management efficiency	3.026	3.114	2.927	3.489	$X_3<X_4$			$X_3<X_4$
Improving finance management efficiency	2.558	2.942	2.600	3.020				$X_1<X_4$
Improving personnel management efficiency	2.740	3.028	2.818	3.080				
Improving purchasing management efficiency	2.974	3.342	3.036	3.440				
Improving R&D management efficiency	3.144	3.800	3.236	3.560	$X_1<X_2$	$X_2>X_3$		$X_1<X_2$ $X_2>X_3$

* Coding 1 represents very important, 2 represents fairly important, 3 represents important, 4 represents slightly important, 5 represents not at all important.

X_1 represents the mean motive value of rating scale score of the subgroup of the total assets of acquiring firms less than NT$ 100 million.
X_2 represents the mean motive value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal to NT$ 100 million but less than NT$ 200 million.
X_3 represents the mean motive value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal to NT$ 200 million but less than NT$ 1,000 million.
X_4 represents the mean motive value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal to NT$ 1,000 million.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-4-1 Descriptive Sample Statistics of the Acquiring Enterprise's Merger and Acquisition Motives Classified by Business Group

Motive	Same business group	Mean*	Std Dev	Cases (No.)
Economies of scale	Yes	2.65	1.54	210
	No	2.48	1.59	35
Control of distribution channels	Yes	3.10	1.49	210
	No	2.74	1.42	35
Reducing administrative expense	Yes	2.23	1.26	210
	No	2.82	1.38	35
Acquiring know-how or research and development	Yes	3.48	1.31	210
	No	3.57	1.35	35
Acquiring brand marks, patents or copyright technologies	Yes	3.93	1.24	208
	No	3.94	1.28	35
Enhancing market competitiveness	Yes	2.89	1.56	208
	No	2.65	1.55	35
Gaining rapid entry into new markets or industries	Yes	3.68	1.30	208
	No	3.37	1.39	35
Controlling of material resources	Yes	3.74	1.33	207
	No	3.77	1.39	35
Combining complementary resources	Yes	2.50	1.41	210
	No	3.17	1.42	35
Resolving financial difficulties	Yes	3.48	1.46	210
	No	3.88	1.27	35
Increasing corporate debt capacity or financing	Yes	3.41	1.41	210
	No	3.77	1.23	35
Risk diversification	Yes	3.69	1.29	208
	No	3.57	1.33	35
Increased market power	Yes	2.96	1.51	210
	No	2.28	1.56	35
Applying for a listing on the stock market	Yes	3.55	1.43	210
	No	4.00	1.21	35
Tax considerations	Yes	3.23	1.48	210
	No	4.00	1.13	35
Government encouragement or support	Yes	3.60	1.32	210
	No	3.82	1.15	35
Exploiting surplus funds	Yes	3.48	1.36	210
	No	4.11	1.02	35
Buying below replacement cost	Yes	3.67	1.33	210
	No	4.00	1.28	35
Gaining potential real estate or other related values	Yes	3.52	1.41	210
	No	3.57	1.29	35
Improving management efficiency generally	Yes	2.71	1.43	185
	No	3.58	1.33	31
Improving marketing management	Yes	2.84	1.48	210

efficiency	No	3.68	1.53	35
Improving production management	Yes	3.04	1.50	209
efficiency	No	3.74	1.48	35
Improving finance management	Yes	2.70	1.50	210
efficiency	No	3.40	1.43	35
Improving personnel management	Yes	2.84	1.51	210
efficiency	No	3.48	1.44	35
Improving purchasing management	Yes	3.09	1.47	210
efficiency	No	3.71	1.36	35
Improving R&D management	Yes	3.32	1.46	210
efficiency	No	3.70	1.33	34

* Coding 1 represents very important, 2 represents fairly important, 3 represents important, 4 represents slightly important, 5 represents not at all important.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-4-2 T-test for Independent Acquiring Enterprise's Merger and Acquisition Motives by Business Group

Motive	T-value	2-Tail Sig.
Economies of scale	.59	.558
Control of distribution channels	1.34	.183
Reducing administrative expense	-2.52	.012
Acquiring know-how or research and development	-.36	.722
Acquiring brand marks, patents or copyright technologies	-.04	.965
Enhancing market competitiveness	.85	.398
Gaining rapid entry into new markets or industries	1.31	.192
Controlling of material resources	-.11	.911
Combining complementary resources	-2.60	.010
Resolving financial difficulties	-1.70	.096
Increasing corporate debt capacity or financing	-1.39	.167
Risk diversification	.53	.597
Increased market power	2.45	.015
Applying for a listing on the stock market	-1.94	.057
Tax considerations	-3.50	.001
Government encouragement or support	-1.06	.292
Exploiting surplus funds	-3.22	.002
Buying below replacement cost	-1.34	.182
Gaining potential real estate or other related values	-.19	.852
Improving management efficiency generally	-3.12	.002
Improving marketing management efficiency	-3.10	.002
Improving production management efficiency	-2.56	.011
Improving finance management efficiency	-2.57	.011
Improving personnel management efficiency	-2.33	.021
Improving purchasing management efficiency	-2.33	.020
Improving R&D management efficiency	-1.41	.159

$H_0 : \mu_{my} = \mu_{mn}$

$H_1 : \mu_{my} \neq \mu_{mn}$

where μ_{my} = mean value of rating scale score, motive m, same business group

μ_{mn} = mean value of rating scale score, motive m, different business group

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-5-1 Descriptive Sample Statistics of Acquiring Enterprise's Merger and Acquisition Motives Classified by Type of Transaction

Motive	Type of transaction	Mean*	Std Dev	Cases (No.)
Economies of scale	Horizontal	2.33	1.41	142
	Vertical	2.63	1.55	36
	Congeneric	2.83	1.57	24
	Conglomerate	3.48	1.69	43
Control of distribution channels	Horizontal	2.81	1.41	142
	Vertical	3.05	1.53	36
	Congeneric	3.12	1.48	24
	Conglomerate	3.79	1.48	43
Reducing administrative expense	Horizontal	2.16	1.11	142
	Vertical	2.41	1.36	36
	Congeneric	2.08	1.34	24
	Conglomerate	2.88	1.62	43
Acquiring know-how or research and development	Horizontal	3.50	1.28	142
	Vertical	3.22	1.37	36
	Congeneric	3.33	1.23	24
	Conglomerate	3.79	1.40	43
Acquiring brand marks, patents or copyright technologies	Horizontal	3.95	1.24	140
	Vertical	3.72	1.27	36
	Congeneric	3.58	1.38	24
	Conglomerate	4.25	1.11	43
Enhancing market competitiveness	Horizontal	2.65	1.49	140
	Vertical	2.41	1.50	36
	Congeneric	2.91	1.61	24
	Conglomerate	3.90	1.37	43
Gaining rapid entry into new markets or industries	Horizontal	3.66	1.27	140
	Vertical	3.36	1.45	36
	Congeneric	3.66	1.20	24
	Conglomerate	3.79	1.42	43
Controlling of material resources	Horizontal	3.72	1.34	139
	Vertical	3.41	1.53	36
	Congeneric	3.83	1.23	24
	Conglomerate	4.04	1.21	43
Combining complementary resources	Horizontal	2.66	1.44	142
	Vertical	2.27	1.23	36
	Congeneric	2.33	1.40	24
	Conglomerate	2.79	1.52	43
Resolving financial difficulties	Horizontal	3.57	1.36	142
	Vertical	3.58	1.48	36
	Congeneric	3.75	1.51	24
	Conglomerate	3.25	1.64	43
Increasing corporate debt capacity or	Horizontal	3.39	1.41	142
	Vertical	3.05	1.47	36

financing	Congeneric	3.91	1.10	24
	Conglomerate	3.81	1.31	43
Risk diversification	Horizontal	3.72	1.23	140
	Vertical	3.69	1.21	36
	Congeneric	4.16	.91	24
	Conglomerate	3.25	1.63	43
Increased market power	Horizontal	2.59	1.48	142
	Vertical	2.69	1.47	36
	Congeneric	2.91	1.55	24
	Conglomerate	3.90	1.32	43
Applying for a listing on the stock market	Horizontal	3.68	1.39	142
	Vertical	3.13	1.49	36
	Congeneric	3.37	1.49	24
	Conglomerate	3.95	1.29	43
Tax considerations	Horizontal	3.54	1.39	142
	Vertical	2.58	1.36	36
	Congeneric	3.20	1.47	24
	Conglomerate	3.39	1.57	43
Government encouragement or support	Horizontal	3.72	1.22	142
	Vertical	3.22	1.29	36
	Congeneric	3.41	1.17	24
	Conglomerate	3.79	1.55	43
Exploiting surplus funds	Horizontal	3.64	1.30	142
	Vertical	3.52	1.27	36
	Congeneric	3.66	1.20	24
	Conglomerate	3.32	1.53	43
Buying below replacement cost	Horizontal	3.71	1.31	142
	Vertical	3.63	1.19	36
	Congeneric	3.79	1.31	24
	Conglomerate	3.76	1.49	43
Gaining potential real estate or other related values	Horizontal	3.53	1.39	142
	Vertical	3.61	1.27	36
	Congeneric	3.83	1.27	24
	Conglomerate	3.27	1.53	43
Improving management efficiency generally	Horizontal	2.71	1.35	127
	Vertical	2.70	1.46	34
	Congeneric	2.95	1.43	20
	Conglomerate	3.37	1.69	35
Improving marketing management efficiency	Horizontal	2.78	1.44	142
	Vertical	2.77	1.47	36
	Congeneric	3.25	1.48	24
	Conglomerate	3.55	1.63	43
Improving production management efficiency	Horizontal	3.06	1.48	142
	Vertical	3.00	1.53	36
	Congeneric	3.21	1.41	24
	Conglomerate	3.48	1.63	43

Improving finance management efficiency	Horizontal	2.73	1.44	142
	Vertical	2.77	1.57	36
	Congeneric	2.66	1.40	24
	Conglomerate	3.11	1.72	43
Improving personnel management efficiency	Horizontal	2.78	1.45	142
	Vertical	2.91	1.48	36
	Congeneric	3.08	1.44	24
	Conglomerate	3.37	1.71	43
Improving purchasing management efficiency	Horizontal	3.04	1.44	142
	Vertical	2.94	1.45	36
	Congeneric	3.08	1.47	24
	Conglomerate	3.86	1.47	43
Improving R&D management efficiency	Horizontal	3.33	1.43	142
	Vertical	3.00	1.47	35
	Congeneric	3.33	1.43	24
	Conglomerate	3.88	1.40	43

* Coding 1 represents very important, 2 represents fairly important, 3 represents important, 4 represents slightly important, 5 represents not at all important.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-5-2 T-test for Independent Acquiring Enterprise's Merger and Acquisition Motives by Type of Transaction

Motive	Type of transaction	T-value	2-Tail Sig.
Economies of scale	Horizontal-Vertical	-1.14	.254
	Horizontal-Congeneric	-1.58	.115
	Horizontal-Conglomerate	-4.49	.000
	Vertical-Congeneric	-2.30	.024
	Vertical-Conglomerate	-.47	.639
	Congeneric-Conglomerate	-1.55	.125
Control of distribution channels	Horizontal-Vertical	-.89	.374
	Horizontal-Congeneric	-.98	.328
	Horizontal-Conglomerate	-3.91	.000
	Vertical-Congeneric	-.17	.862
	Vertical-Conglomerate	-2.16	.034
	Congeneric-Conglomerate	-1.76	.084
Reducing administrative expense	Horizontal-Vertical	-1.01	.318
	Horizontal-Congeneric	.34	.737
	Horizontal-Conglomerate	-2.70	.009
	Vertical-Congeneric	.93	.355
	Vertical-Conglomerate	-1.39	.168
	Congeneric-Conglomerate	-2.16	.035
Acquiring know-how or research and development	Horizontal-Vertical	1.17	.242
	Horizontal-Congeneric	.62	.538
	Horizontal-Conglomerate	-1.24	.216
	Vertical-Congeneric	-.32	.751
	Vertical-Conglomerate	-1.81	.075
	Congeneric-Conglomerate	-1.33	.188
Acquiring brand marks, patents or copyright technologies	Horizontal-Vertical	.98	.331
	Horizontal-Congeneric	1.31	.191
	Horizontal-Conglomerate	-1.44	.150
	Vertical-Congeneric	.40	.691
	Vertical-Conglomerate	-1.98	.051
	Congeneric-Conglomerate	-2.17	.034
Enhancing market competitiveness	Horizontal-Vertical	.83	.406
	Horizontal-Congeneric	-.80	.427
	Horizontal-Conglomerate	-4.90	.000
	Vertical-Congeneric	-1.23	.225
	Vertical-Conglomerate	-4.60	.000
	Congeneric-Conglomerate	-2.54	.015
Gaining rapid entry into new markets or industries	Horizontal-Vertical	1.23	.219
	Horizontal-Congeneric	-.01	.993
	Horizontal-Conglomerate	-.55	.582
	Vertical-Congeneric	-.85	.398
	Vertical-Conglomerate	-1.32	.190
	Congeneric-Conglomerate	-.36	.720

Controlling of material resources	Horizontal-Vertical	1.11	.274
	Horizontal-Congeneric	-.36	.716
	Horizontal-Conglomerate	-1.40	.164
	Vertical-Congeneric	-1.16	.252
	Vertical-Conglomerate	-1.99	.050
	Congeneric-Conglomerate	-.68	.496
Combining complementary resources	Horizontal-Vertical	1.61	.113
	Horizontal-Congeneric	1.03	.303
	Horizontal-Conglomerate	-.50	.614
	Vertical-Congeneric	-.16	.872
	Vertical-Conglomerate	-1.60	.102
	Congeneric-Conglomerate	-1.21	.230
Resolving financial difficulties	Horizontal-Vertical	-.02	.982
	Horizontal-Congeneric	-.56	.574
	Horizontal-Conglomerate	1.16	.249
	Vertical-Congeneric	-.42	.673
	Vertical-Conglomerate	.92	.360
	Congeneric-Conglomerate	1.21	.230
Increasing corporate debt capacity or financing	Horizontal-Vertical	1.27	.205
	Horizontal-Congeneric	-2.06	.047
	Horizontal-Conglomerate	-1.73	.085
	Vertical-Congeneric	-2.59	.012
	Vertical-Conglomerate	-2.42	.018
	Congeneric-Conglomerate	.32	.747
Risk diversification	Horizontal-Vertical	.12	.906
	Horizontal-Congeneric	-2.08	.044
	Horizontal-Conglomerate	1.72	.090
	Vertical-Congeneric	-1.71	.092
	Vertical-Conglomerate	1.37	.176
	Congeneric-Conglomerate	2.92	.005
Increased market power	Horizontal-Vertical	-.37	.711
	Horizontal-Congeneric	-.98	.327
	Horizontal-Conglomerate	-5.20	.000
	Vertical-Congeneric	-.56	.578
	Vertical-Conglomerate	-3.86	.000
	Congeneric-Conglomerate	-2.75	.008
Applying for a listing on the stock market	Horizontal-Vertical	2.07	.040
	Horizontal-Congeneric	.99	.322
	Horizontal-Conglomerate	-1.18	.241
	Vertical-Congeneric	-.60	.552
	Vertical-Conglomerate	-2.57	.012
	Congeneric-Conglomerate	-1.66	.102
Tax considerations	Horizontal-Vertical	3.74	.000
	Horizontal-Congeneric	1.10	.273
	Horizontal-Conglomerate	.62	.539
	Vertical-Congeneric	-1.69	.097

	Vertical-Conglomerate	-2.43	.018
	Congeneric-Conglomerate	-.48	.635
Government encouragement or support	Horizontal-Vertical	2.17	.031
	Horizontal-Congeneric	1.15	.253
	Horizontal-Conglomerate	-.25	.801
	Vertical-Congeneric	-.59	.556
	Vertical-Conglomerate	-1.75	.084
	Congeneric-Conglomerate	-1.03	.309
Exploiting surplus funds	Horizontal-Vertical	.47	.642
	Horizontal-Congeneric	-.09	.928
	Horizontal-Conglomerate	1.22	.228
	Vertical-Congeneric	-.42	.674
	Vertical-Conglomerate	.64	.525
	Congeneric-Conglomerate	1.00	.320
Buying below replacement cost	Horizontal-Vertical	.33	.743
	Horizontal-Congeneric	-.25	.801
	Horizontal-Conglomerate	-.21	.836
	Vertical-Congeneric	-.46	.644
	Vertical-Conglomerate	-.42	.673
	Congeneric-Conglomerate	.07	.947
Gaining potential real estate or other related values	Horizontal-Vertical	-.30	.767
	Horizontal-Congeneric	-.98	.329
	Horizontal-Conglomerate	1.03	.305
	Vertical-Congeneric	-.66	.510
	Vertical-Conglomerate	1.04	.304
	Congeneric-Conglomerate	1.50	.137
Improving management efficiency generally	Horizontal-Vertical	.04	.968
	Horizontal-Congeneric	-.71	.479
	Horizontal-Conglomerate	-2.10	.041
	Vertical-Congeneric	-.60	.554
	Vertical-Conglomerate	-1.74	.086
	Congeneric-Conglomerate	-.98	.332
Improving marketing management efficiency	Horizontal-Vertical	.01	.989
	Horizontal-Congeneric	-1.46	.146
	Horizontal-Conglomerate	-2.98	.003
	Vertical-Congeneric	-1.21	.230
	Vertical-Conglomerate	-2.21	.030
	Congeneric-Conglomerate	-.76	.448
Improving production management efficiency	Horizontal-Vertical	.23	.821
	Horizontal-Congeneric	-.46	.644
	Horizontal-Conglomerate	-1.60	.111
	Vertical-Congeneric	-.55	.586
	Vertical-Conglomerate	-1.36	.178
	Congeneric-Conglomerate	-.67	.505
Improving finance management efficiency	Horizontal-Vertical	-.17	.869
	Horizontal-Congeneric	.21	.837

	Horizontal-Conglomerate	-1.33	.189
	Vertical-Congeneric	.28	.781
	Vertical-Conglomerate	-.91	.368
	Congeneric-Conglomerate	-1.16	.252
Improving personnel management efficiency	Horizontal-Vertical	-.47	.640
	Horizontal-Congeneric	-.92	.360
	Horizontal-Conglomerate	-2.02	.048
	Vertical-Congeneric	-.43	.668
	Vertical-Conglomerate	-1.27	.210
	Congeneric-Conglomerate	-.73	.467
Improving purchasing management efficiency	Horizontal-Vertical	.39	.697
	Horizontal-Congeneric	-.11	.915
	Horizontal-Conglomerate	-3.22	.002
	Vertical-Congeneric	-.36	.720
	Vertical-Conglomerate	-2.77	.007
	Congeneric-Conglomerate	-2.07	.042
Improving R&D management efficiency	Horizontal-Vertical	1.22	.225
	Horizontal-Congeneric	-.01	.994
	Horizontal-Conglomerate	-2.23	.027
	Vertical-Congeneric	-.86	.392
	Vertical-Conglomerate	-2.71	.008
	Congeneric-Conglomerate	-1.53	.131

$H_0 : \mu_{md} = \mu_{me}$

$H_1 : \mu_{md} \neq \mu_{me}$

where μ_{md} = mean value of rating scale score, motive m, type d

μ_{me} = mean value of rating scale score, motive m, type e

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-6-1 The Pearson Linear Correlation Between the Motives for Mergers and Acquisitions and the Total Assets Before Each Transaction of Acquiring Enterprises

Motive	Correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	-.0743	.276	217
Control of distribution channels	.0285	.676	217
Reducing administrative expense	-.0094	.890	217
Acquiring know-how or research and development	.0384	.573	217
Acquiring brand marks, patents or copyright technologies	.0901	.188	215
Enhancing market competitiveness	.0061	.929	215
Gaining rapid entry into new markets or industries	.0428	.533	215
Controlling of material resources	.1045	.128	214
Combining complementary resources	.0025	.971	217
Resolving financial difficulties	.1861	.006	217
Increasing corporate debt capacity or financing	.1588	.019	217
Risk diversification	.0358	.602	215
Increased market power	-.0280	.681	217
Applying for a listing on the stock market	-.1963	.004	217
Tax considerations	.0109	.873	217
Government encouragement or support	-.0335	.624	217
Exploiting surplus funds	.0301	.660	217
Buying below replacement cost	.0119	.861	217
Gaining potential real estate or other related values	-.0064	.925	217
Improving management efficiency generally	.1785	.014	188
Improving marketing management efficiency	.1421	.036	217
Improving production management efficiency	.0728	.287	216
Improving finance management efficiency	.0592	.386	217
Improving personnel management efficiency	.0566	.407	217
Improving purchasing management efficiency	.1077	.114	217
Improving R&D management efficiency	.0760	.266	216

$H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and total assets before each transaction of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-7-1 The Pearson Linear Correlation between the Motives for Mergers and Acquisitions and the Change in Assets After Mergers and Acquisitions

Motive	Correlation Coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	-.2007	.005	198
Control of distribution channels	-.0247	.730	198
Reducing administrative expense	-.1472	.039	198
Acquiring know-how or research and development	-.0389	.586	198
Acquiring brand marks, patents or copyright technologies	.0046	.949	196
Enhancing market competitiveness	-.0333	.643	196
Gaining rapid entry into new markets or industries	.0997	.164	196
Controlling of material resources	.0977	.174	195
Combining complementary resources	-.0475	.506	198
Resolving financial difficulties	.0711	.319	198
Increasing corporate debt capacity or financing	.1059	.138	198
Risk diversification	.0357	.620	196
Increased market power	-.1197	.093	198
Applying for a listing on the stock market	-.2362	.001	198
Tax considerations	-.0872	.222	198
Government encouragement or support	-.1233	.084	198
Exploiting surplus funds	.0267	.709	198
Buying below replacement cost	-.0227	.751	198
Gaining potential real estate or other related values	.0409	.568	198
Improving management efficiency generally	.0353	.644	173
Improving marketing management efficiency	.0444	.534	198
Improving production management efficiency	-.0828	.247	197
Improving finance management efficiency	-.0434	.543	198
Improving personnel management efficiency	-.0037	.958	198
Improving purchasing management efficiency	.0014	.985	198
Improving R&D management efficiency	-.0419	.559	197

P = Probability of type I error of the null hypothesis H_0 against H_1

$H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and the change in assets after mergers and acquisitions of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-8-1 Unrotated Principal Components Analysis Factor Loadings for the Motives for Mergers and Acquisitions

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Comm-unality
Economies of scale	.602	-.065	.344	-.008	1.00
Control of distribution channels	.603	-.174	.500	.045	1.00
Administrative expense reduction	.520	-.392	-.183	.278	1.00
Acquiring know-how or research and development	.699	-.112	.375	.211	1.00
Acquiring brand marks, patents or copyright technologies	.657	.141	.308	-.077	1.00
Enhancing market competitiveness	.652	-.081	.521	-.020	1.00
Gaining rapid entry into new markets or industries	.562	.225	.334	.233	1.00
Control of material resources	.663	.226	.115	.087	1.00
Combining complementary resources	.595	-.092	-.164	.337	1.00
Resolving financial difficulties	.541	.463	-.231	.368	1.00
Increasing corporate debt capacity or financing	.611	.389	-.148	.204	1.00
Risk diversification	.682	.339	-.041	.237	1.00
Increased market power	.655	-.086	.383	-.169	1.00
Applying for a listing on the stock market	.544	.122	.108	-.521	1.00
Tax considerations	.593	.283	-.334	-.017	1.00
Government encouragement or support	.634	.348	-.112	-.117	1.00
Exploiting surplus funds	.642	.428	-.148	-.116	1.00
Buying below replacement cost	.610	.427	-.078	-.140	1.00
Gaining potential real estate or other related values	.437	.390	-.151	-.394	1.00
Improving marketing management efficiency	.761	-.460	-.195	-.009	1.00
Improving production management efficiency	.761	-.273	-.274	-.087	1.00
Improving finance management efficiency	.734	-.301	-.402	-.087	1.00
Improving personnel management efficiency	.732	-.389	-.308	-.091	1.00
Improving purchasing management efficiency	.808	-.401	-.068	-.079	1.00
Improving R&D management efficiency	.793	-.340	-.048	-.049	1.00
					Total
Sum of squares (eigenvalue)	10.566	2.369	1.852	1.072	15.859
Percentage of Variance	42.3	9.5	7.4	4.3	63.4

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 5-8-2 VARIMAX Rotated Principal Components Analysis Factor Loadings Matrix for the Motives for Mergers and Acquisitions

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Comm-unality
Improving marketing management efficiency	**.847**	.292	.124	.106	.830
Improving personnel management efficiency	**.835**	.170	.152	.204	.792
Improving finance management efficiency	**.822**	.085	.241	.240	.800
Improving purchasing management efficiency	**.777**	**.413**	.119	.190	.825
Improving production management efficiency	**.761**	.203	.237	.245	.737
Improving R&D management efficiency	**.720**	**.418**	.161	.177	.750
Administrative expense reduction	**.655**	.182	.177	-.201	.535
Combining complementary resources	**.497**	.214	**.439**	-.131	.503
Enhancing market competitiveness	.202	**.794**	.114	.140	.704
Control of distribution channels	.244	**.762**	.063	.037	.646
Acquiring know-how or research and development	.321	**.715**	.266	-.046	.687
Increased market power	.269	**.672**	.083	.285	.612
Economies of scale	.243	**.619**	.156	.137	.486
Acquiring brand marks, patents or copyright technologies	.157	**.595**	.301	.287	.553
Gaining rapid entry into new markets or industries	.037	**.577**	**.442**	.016	.530
Resolving financial difficulties	.133	.080	**.820**	.016	.697
Increasing corporate debt capacity or financing	.183	.184	**.706**	.150	.589
Risk diversification	.209	.318	**.693**	.115	.638
Exploiting surplus funds	.173	.177	**.601**	**.457**	.632
Tax considerations	.325	.016	**.577**	.324	.544
Buying below replacement cost	.121	.217	**.553**	**.461**	.581
Government encouragement or support	.203	.210	**.531**	**.425**	.549
Control of material resources	.197	**.440**	**.493**	.189	.512
Applying for a listing on the stock market	.190	.341	.086	**.659**	.594
Gaining potential real estate or other related values	.072	.050	.344	**.628**	.521
					Total
Sum of squares (eigenvalue)	10.566	2.369	1.852	1.072	15.859
Percentage of Variance	42.3	9.5	7.4	4.3	63.4

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 6-5-1 Descriptive Sample Statistics of the Main Method of Payment in Mergers and Acquisitions

Item	Main method of payment	No.of Cases*	Percent
1	Cash (reserves)	50	19.45
2	Cash (bank borrowing)	34	13.23
3	Common stock	147	57.20
4	Corporate bonds	2	.78
5	Convertible bonds	4	1.56
6	Subscription warrants	13	5.06
7	Others	7	2.72
	Total	257	100.00

* One firm ticked three main methods of payment, item 1, 2 and 3, and five firms ticked item 1 and 2, two firms ticked item 1 and 3, two firms ticked item 2 and 5, one firm ticked item 2 and 7 and one firm ticked item 5 and 7.

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996.

Table 6-6-1 T-test for Independent Acquiring Enterprise's Average Assets Before Transaction by the Main Method of Payment

Main method of payment	Mean (ln assets)	SD (ln assets)	T-value	2-Tail Sig.	No.of Cases
Cash (reserves)					
No	10.2128	1.967	2.17	.031	178
Yes	9.4682	1.813			39
Cash (bank borrowing)					
No	10.1108	1.972	.62	.535	189
Yes	9.8644	1.878			28
Common stock					
No	9.6046	1.939	-2.71	.007	78
Yes	10.3452	1.923			139
Subscription warrants					
No	10.0937	1.937	.48	.633	206
Yes	9.8037	2.395			11
Others					
No	10.0744	1.959	-.16	.876	207
Yes	10.1738	2.022			10

$H_0 : \mu_{py} = \mu_{pn}$

$H_1 : \mu_{py} \neq \mu_{pn}$

where μ_{py} = mean(ln assets) of acquiring enterprise before transaction, payment method p, same method of payment.

μ_{pn} = mean(ln assets) of acquiring enterprise before transaction, payment method p, different method of payment.

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996.

Table 6-6-2 T-test for Independent Acquiring Enterprise's Average Assets Before Transaction by the Different Main Methods of Payment

Main method of payment	Mean (ln assets)	SD (ln assets)	T-value	2-Tail Sig.	No.of Cases
Cash (reserves)	9.1972	1.713	-.75	.454	32
Cash (bank borrowing)	9.5876	1.911			19
Cash (reserves)	9.1972	1.713	-3.09	.002	32
Common stock	10.3478	1.937			137
Cash (reserves)	9.1972	1.713	-.91	.367	32
Subscription warrants	9.8037	2.395			11
Cash (reserves)	9.1972	1.713	-1.61	.117	32
Others	10.5217	2.566			6
Cash (bank borrowing)	9.5876	1.911	-1.61	.110	19
Common stock	10.3478	1.937			137
Cash (bank borrowing)	9.5876	1.911	-.27	.788	19
Subscription warrants	9.8037	2.395			11
Cash (bank borrowing)	9.5876	1.911	-.96	.345	19
Others	10.5217	2.566			6
Common stock	10.3478	1.937	.88	.380	137
Subscription warrants	9.8037	2.395			11
Common stock	10.3478	1.937	-.21	.832	137
Others	10.5217	2.566			6
Subscription warrants	9.8037	2.395	-.58	.573	11
Others	10.5217	2.566			6

$H_0 : \mu_p = \mu_q$

$H_1 : \mu_p \neq \mu_q$

where μ = mean(ln assets) of acquiring enterprise before transaction, method of payment p or q but $p \neq q$.

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 6-7-1 T-test for Independent Acquiring Enterprise's Average Change in Total Assets by the Main Method of Payment

Main method of payment	Mean (ln assets)	SD (ln assets)	T-value	2-Tail Sig.	No.of Cases
Cash (reserves)					
No	9.1849	2.141	1.33	.188	164
Yes	8.7924	1.418			34
Cash (bank borrowing)					
No	9.2368	2.046	2.09	.038	171
Yes	8.3618	1.838			27
Common stock					
No	8.5053	1.698	-3.45	.001	71
Yes	9.4597	2.135			127
Subscription warrants					
No	9.1645	2.028	1.41	.160	188
Yes	8.2339	2.122			10
Others					
No	9.1153	2.065	-.07	.947	188
Yes	9.1593	1.504			10

$H_0 : \mu_{py} = \mu_{pn}$

$H_1 : \mu_{py} \neq \mu_{pn}$

where μ_{py} = ln(change in total assets) of acquiring enterprise, payment method p.

μ_{pn} = ln(change in total assets) of acquiring enterprise, payment method not p.

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996.

Table 6-7-2 T-test for Independent Acquiring Enterprise's Average Change in Total Assets by the Different Main Methods of Payment

Main method of payment	Mean (ln assets)	SD (ln assets)	T-value	2-Tail Sig.	No.of Cases
Cash (reserves)	8.6509	1.298	1.24	.222	27
Cash (bank borrowing)	8.0701	1.851			18
Cash (reserves)	8.6509	1.298	-2.54	.014	27
Common stock	9.4528	2.151			125
Cash (reserves)	8.6509	1.298	.73	.473	27
Subscription warrants	8.2339	2.122			10
Cash (reserves)	8.6509	1.298	-1.52	.139	27
Others	9.5141	1.512			7
Cash (bank borrowing)	8.0701	1.851	-2.59	.011	18
Common stock	9.4528	2.151			125
Cash (bank borrowing)	8.0701	1.851	-.21	.833	18
Subscription warrants	8.2339	2.122			10
Cash (bank borrowing)	8.0701	1.851	-1.83	.080	18
Others	9.5141	1.512			7
Common stock	9.4528	2.151	1.73	.087	125
Subscription warrants	8.2339	2.122			10
Common stock	9.4528	2.151	-.07	.941	125
Others	9.5141	1.512			7
Subscription warrants	8.2339	2.122	-1.37	.192	10
Others	9.5141	1.512			7

$H_0 : \mu_p = \mu_q$

$H_1 : \mu_p \neq \mu_q$

where μ = ln(change in assets) of acquiring enterprise each transaction, method of payment p or q but $p \neq q$

Source: Own calculations based on questionnaire survey in Taiwan, May--July 1996

Table 6-8-1 Tests of Independence of the Main Method of Payment and Estimated Value of the Acquired Enterprise

Cases Expected value	Book value	Stock market value	Replacement cost value	Cash flow value	Others	Row Total
Cash (reserves)	21 27.6	1 1.3	11 6.0	4 1.1	2 3.1	39 18.1%
Cash (bank borrowing)	11 14.1	1 .7	6 3.1	1 .6	1 1.6	20 9.3%
Common stock	103 94.7	5 4.4	13 20.6	1 3.7	12 10.6	134 62.3%
Subscription warrants	8 9.2	0 .4	3 2.0	0 .4	2 1.0	13 6.0%
Other methods of payment	9 6.4	0 .3	0 1.4	0 .3	0 .7	9 4.2%
Column Total	152 70.7%	7 3.3%	33 15.3%	6 2.8%	17 7.9%	215 100.0%

Chi-Square = 30.1256 DF = 16 Significance =.01736

H_0: The two variables are independent.
H_1: The two variables are associated.
Test statistic: $\chi^2 = \Sigma [(N_{ij} - E_{ij})^2 / E_{ij}]$
where N_{ij}, the upper figures, and E_{ij}, the lower figures, are respectively the observed and expected number of measurements falling in the cell for the ith row and the jth column.
E_{ij} = (row i total)(column j total) / N
df = (r-1)(c-1), where
r = number of rows in the table
c = number of columns in the table

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 6-8-2 The Correlation between the Main Method of Payment and the Estimated Value of the Acquired Firm

	Book value	Stock market value	Replacement cost value	Cash flow value	Others
Cash (reserves)	Φ=-.154 P=.015	Φ=-.021 P=.742	Φ=.127 P=.048	Φ=.181 P=.005	Φ=.010 P=.876
Cash (bank borrowing)	Φ=-.080 P=.212	Φ=-.036 P=.569	Φ=.153 P=.016	Φ=.257 P=.000	Φ=-.005 P=.943
Common stock	Φ=.189 P=.003	Φ=.031 P=.629	Φ=-.112 P=.078	Φ=-.266 P=.000	Φ=.061 P=.337
Subscription warrants	Φ=-.064 P=.317	Φ=-.054 P=.400	Φ=.018 P=.776	Φ=-.058 P=.362	Φ=.048 P=.450
Other methods of payment	Φ=.094 P=.143	Φ=-.052 P=.420	Φ=-.066 P=.300	Φ=-.056 P=.382	Φ=-.070 P=.274

P = Probability of type I error of the null hypothesis H_0 against H_1

where

H_0: The two variables are independent.

H_1: The two variables are associated.

where

$\Phi = (\chi^2 / N)^{1/2}$, The phi coefficient between the acquiring firm's main method of payment and the estimated value of the acquired firm.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-2-1 Superior Post-Transaction Profits Performance Hypotheses and Independent Variables

Hypothesis	Variables*	Expected sign**
1. Size hypothesis	Total assets	+
2. Business group hypothesis	Business group	-
3. The types of transaction hypothesis	Horizontal transaction	?
	Vertical transaction	?
	Congeneric transaction	?
	Conglomerate transaction	?
4. Merger motive hypothesis		
	Economies of scale	+
	Control of distribution channels	+
	Reducing administrative expense	+
	Acquiring know-how or research and development	+
	Acquiring brand marks, patent or copyright technology	+
	Enhancing market competitiveness	+
	Gaining rapid entry into new markets or industries	+
	Controlling of material resources	+
	Combining complementary resources	+
	Resolving financial difficulties	+
	Increasing corporate debt capacity or financing	+
	Risk diversification	+
	Increased market power	+
	Applying for a listing on the stock market	+
	Tax considerations	+
	Government encouragement or support	+
	Exploiting surplus funds	?
	Buying below replacement cost	?
	Gaining potential real estate or other related values	?
	Improving marketing management efficiency	+
	Improving production management efficiency	+
	Improving finance management efficiency	+
	Improving personnel management efficiency	+
	Improving purchasing management efficiency	+
5. The main method of payment hypothesis		
	Cash (reserves)	+
	Cash (bank borrowing)	+
	Common stock	?
	Subscription warrants	?
	The other payment methods	?
6. Acquired firm's estimation method hypothesis		
	Book value	?
	Stock market value	?

	Replacement cost value	?
	Cash flow value	?
	The others estimation method	?
7. Pre-transaction performance hypothesis		
	Net sales	+
	Gross profits	+
	Operating income	+
	Net income	+
	Earnings per share	+
	Dividends per share	+
	Price/Earning ratio	+
	Return on total assets	+
8. Transaction process problems hypothesis		
	Asset valuation	-
	Goodwill valuation	-
	Contingent loss	-
	Customer drain	-
	Manager or employee drain	-
	Personnel arrangements	-
	Shareholders against bidding	-
	Corporate culture differences	-
	Litigation	-
	Raising finance	-
	Government regulations	-

* 1. Merger motives coding: 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.
2. Payment methods dummy coding: The dummy is assigned a value one if the acquiring firm choose one of the main methods of payment.
3. Acquired firm's estimation method dummy coding: The dummy is assigned a value one if the acquiring firm choose one of the estimation methods for the acquired firm.
4. Pre-transaction performance coding: 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.
5. Transaction process problems coding: 1 not at all serious, 2 a little serious, 3 serious, 4 fairly serious, 5 very serious.

**A positive sign of merger motives, pre-transaction performance, the main method of payment and the acquired firm's estimation method implies that the variable increases the likelihood of superior post-transaction performance and a negative sign implies the opposite. A negative sign of transaction process problem implies that the variable increases the likelihood of superior post-transaction performance and a positive sign implies the opposite.

Table 7-3-1 Descriptive Sample Statistics of the Acquiring Enterprise's Post-Transaction Performance

Post-transaction performance	Mean*	Variance	No. of Cases	Superior or very superior (%)	Same (%)	Inferior or very inferior (%)
Level of profit						
Net sales	1.966	.799	236	72.9	22.9	4.2
Gross profits	2.162	.837	235	69.8	21.7	8.5
Operating income	2.155	.838	233	68.2	23.6	8.2
Net income	2.164	.865	232	67.2	24.1	8.7
Profit rate						
Earnings per share	2.268	.955	228	61.8	27.6	10.6
Dividends per share	2.330	.930	227	58.1	31.3	10.6
Price/Earning ratio	2.303	.839	218	61.0	29.8	9.2
Return on total assets	2.289	.916	218	63.3	24.3	12.4

* 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.
Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-3-2 T-test and Kolmogorov-Smirnov Test for Independent Acquiring Enterprise's Post-Transaction Performance

Post-transaction performance	T-value$_1$	2-Tail Sig.	K-S Z-value$_2$	2-Tail Sig.
Level of profit				
Net sales	-17.77	.000	7.35	.000
Gross profits	-14.05	.000	6.86	.000
Operating income	-14.10	.000	6.60	.000
Net income	-13.70	.000	6.43	.000
Profit rate				
Earnings per share	-11.32	.000	5.96	.000
Dividends per share	-10.46	.000	5.94	.000
Price/Earning ratio	-11.24	.000	6.02	.000
Return on total assets	-10.79	.000	5.65	.000

1. $H_0 : \mu = 3$
   $H_1 : \mu \neq 3$
   where μ = mean value of rating scale score, post-transaction performance p.

2. H_0 : The observed cumulative distribution function for the post-transaction performance p of the sample is a uniform distribution.
   H_1 : The observed cumulative distribution function for the post-transaction performance p of the sample is not a uniform distribution.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-4-1 Descriptive Sample Statistics of Acquiring Enterprise's Post-Transaction Performance Classified by the Assets of the Firm

Post-transaction performance	Small Acquiring Enterprises X_1* (means**)	Small-Medium Acquiring Enterprises X_2* (means)	Medium Acquiring Enterprises X_3* (means)	Large Acquiring Enterprises X_4* (means)
Level of profit				
Net sales	2.066	2.285	1.826	1.860
Gross profits	2.293	2.600	1.961	1.979
Operating income	2.274	2.600	1.980	1.938
Net income	2.319	2.628	1.980	1.898
Profit rate				
Earnings per share	2.462	2.628	2.113	2.061
Dividends per share	2.477	2.724	2.207	2.145
Price/Earning ratio	2.507	2.531	2.200	2.066
Return on total assets	2.403	2.575	2.204	2.085
No. of Cases	75	35	52	50

** 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

* X_1 represents the mean post-transaction performance value of rating scale score of the subgroup of the total assets of acquiring firms less than NT$ 100 million.
X_2 represents the mean post-transaction performance value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal NT$ 100 million but less than NT$ 200 million.
X_3 represents the mean post-transaction performance value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal NT$ 200 million but less than NT$ 1,000 million.
X_4 represents the mean post-transaction performance value of rating scale score of the subgroup of the total assets of acquiring firms greater than or equal NT$ 1,000 million.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-4-2 T-test and Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) for Independent Acquiring Enterprise's Post-Transaction Performance

Post-transaction performance	T-test	T-value	2-Tail Sig.	U-test	Z-value	2-Tail Sig.
Level of profit						
Net sales	X_1-X_2	-1.03	.307	X_1-X_2	-.721	.470
	X_1-X_3	1.58	.116	X_1-X_3	-1.741	.081
	X_1-X_4	1.38	.170	X_1-X_4	-1.421	.155
	X_2-X_3	2.13	.036	X_2-X_3	-1.893	.058
	X_2-X_4	2.00	.048	X_2-X_4	-1.674	.094
	X_3-X_4	-.19	.846	X_3-X_4	-.307	.758
Gross profits	X_1-X_2	-1.51	.138	X_1-X_2	-1.314	.188
	X_1-X_3	2.22	.028	X_1-X_3	-2.450	.014
	X_1-X_4	2.19	.031	X_1-X_4	-2.375	.017
	X_2-X_3	2.93	.004	X_2-X_3	-2.749	.006
	X_2-X_4	2.83	.006	X_2-X_4	-2.721	.006
	X_3-X_4	-.10	.918	X_3-X_4	-.280	.779
Operating income	X_1-X_2	-1.63	.109	X_1-X_2	-1.611	.107
	X_1-X_3	2.01	.047	X_1-X_3	-2.301	.021
	X_1-X_4	2.23	.027	X_1-X_4	-2.398	.016
	X_2-X_3	2.86	.006	X_2-X_3	-2.808	.005
	X_2-X_4	3.08	.003	X_2-X_4	-2.872	.004
	X_3-X_4	.24	.812	X_3-X_4	-.276	.782
Net income	X_1-X_2	-1.54	.129	X_1-X_2	-1.591	.111
	X_1-X_3	2.26	.026	X_1-X_3	-2.484	.013
	X_1-X_4	2.77	.006	X_1-X_4	-2.909	.003
	X_2-X_3	3.07	.003	X_2-X_3	-2.907	.003
	X_2-X_4	3.41	.001	X_2-X_4	-3.178	.001
	X_3-X_4	.46	.643	X_3-X_4	-.500	.616
Profit rate						
Earnings per share	X_1-X_2	-.83	.390	X_1-X_2	-.713	.475
	X_1-X_3	2.13	.035	X_1-X_3	-2.290	.022
	X_1-X_4	2.41	.018	X_1-X_4	-2.681	.007
	X_2-X_3	2.32	.023	X_2-X_3	-2.245	.024
	X_2-X_4	2.52	.014	X_2-X_4	-2.528	.011
	X_3-X_4	.27	.787	X_3-X_4	-.290	.771
Dividends per share	X_1-X_2	-1.39	.167	X_1-X_2	-1.275	.202
	X_1-X_3	1.65	.101	X_1-X_3	-1.751	.079
	X_1-X_4	2.03	.045	X_1-X_4	-2.229	.025
	X_2-X_3	2.44	.017	X_2-X_3	-2.333	.019
	X_2-X_4	2.73	.008	X_2-X_4	-2.701	.006
	X_3-X_4	.33	.744	X_3-X_4	-.322	.747
Price/Earning ratio	X_1-X_2	-.14	.891	X_1-X_2	-.257	.796
	X_1-X_3	1.99	.049	X_1-X_3	-2.032	.042
	X_1-X_4	2.66	.009	X_1-X_4	-2.970	.003
	X_2-X_3	1.69	.095	X_2-X_3	-1.794	.072

	X_2-X_4	2.20	.031	X_2-X_4	-2.516	.011
	X_3-X_4	.70	.483	X_3-X_4	-960	.336
Return on total assets	X_1-X_2	-.89	.377	X_1-X_2	-.829	.407
	X_1-X_3	1.19	.236	X_1-X_3	-1.396	.162
	X_1-X_4	1.83	.071	X_1-X_4	-2.068	.038
	X_2-X_3	1.74	.086	X_2-X_3	-1.759	.078
	X_2-X_4	2.19	.031	X_2-X_4	-2.250	.024
	X_3-X_4	.62	.538	X_3-X_4	-.732	.463

$H_0 : X_{pd} = X_{pe}$

$H_1 : X_{pd} \neq X_{pe}$

where X_{pd} = mean or median value of rating scale score, post-transaction performance p, group d

X_{pe} = mean or median value of rating scale score, post-transaction performance p, group e

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-5-1 Descriptive Sample Statistics of the Acquiring Enterprise's Post-Transaction Performance Classified by Business Group

Post-transaction performance	Same business group	Mean*	Std Dev	Cases (No.)
Level of profit				
Net sales	No	1.588	.743	34
	Yes	2.029	.903	202
Gross profits	No	1.878	. 781	33
	Yes	2.207	. 928	202
Operating income	No	1.818	.808	33
	Yes	2.210	.922	200
Net income	No	1.875	.833	32
	Yes	2.210	.938	200
Profit rate				
Earnings per share	No	1.906	.818	32
	Yes	2.326	.990	196
Dividends per share	No	1.967	.836	31
	Yes	2.387	.973	196
Price/Earning ratio	No	2.000	.856	31
	Yes	2.352	.918	187
Return on total assets	No	2.034	.944	29
	Yes	2.328	.956	189

* 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.
Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-5-2 T-test and Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) for Independent Acquiring Enterprise's Post-Transaction Performance by Business Group

Post-transaction performance	T-value	2-Tail Sig.	Z-value	2-Tail Sig.
Level of profit				
Net sales	-2.70	.007	-2.772	.005
Gross profits	-1.93	.055	-2.007	.044
Operating income	-2.30	.022	-2.419	.015
Net income	-1.90	.058	-1.976	.048
Profit rate				
Earnings per share	-2.28	.024	-2.233	.025
Dividends per share	-2.27	.024	-2.232	.025
Price/Earning ratio	-2.00	.047	-2.072	.038
Return on total assets	-1.54	.124	-1.631	.102

$H_0 : \mu_{py} = \mu_{pn}$

$H_1 : \mu_{py} \neq \mu_{pn}$

where μ_{py} = mean or median value of rating scale score, post-transaction performance p, same business group

μ_{pn} = mean or median value of rating scale score, post-transaction performance p, different business group

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-6-1 Descriptive Sample Statistics of Acquiring Enterprise's Post-Transaction Performance Classified by Type of Transaction

Post-transaction performance	Type of transaction	Mean*	Std Dev	Cases (No.)
Level of profit				
Net sales	Horizontal	1.835	.801	140
	Vertical	1.764	.855	34
	Congeneric	2.190	1.078	21
	Conglomerate	2.463	.951	41
Gross profits	Horizontal	2.014	.816	139
	Vertical	2.205	.946	34
	Congeneric	2.428	1.165	21
	Conglomerate	2.487	.978	41
Operating income	Horizontal	2.043	.879	138
	Vertical	2.264	.963	34
	Congeneric	2.350	1.089	20
	Conglomerate	2.341	.883	41
Net income	Horizontal	2.065	.893	137
	Vertical	2.352	.981	34
	Congeneric	2.350	1.089	20
	Conglomerate	2.243	.916	41
Profit rate				
Earnings per share	Horizontal	2.075	.853	132
	Vertical	2.588	1.158	34
	Congeneric	2.600	1.231	20
	Conglomerate	2.452	.942	42
Dividends per share	Horizontal	2.167	.861	131
	Vertical	2.617	1.155	34
	Congeneric	2.650	1.226	20
	Conglomerate	2.452	.889	42
Price/Earning ratio	Horizontal	2.173	.808	127
	Vertical	2.562	1.105	32
	Congeneric	2.578	1.216	19
	Conglomerate	2.375	.868	40
Return on total assets	Horizontal	2.198	.877	126
	Vertical	2.545	1.148	33
	Congeneric	2.421	1.216	19
	Conglomerate	2.300	.883	40

* 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-6-2 T-test and Mann-Whitney U - Wilcoxon Rank Sum W Test (U-test) for Independent Acquiring Enterprise's Post-Transaction Performance by Type of Transaction

Post-transaction performance	Type of transaction	T-value	2-Tail Sig.	Z-value	2-Tail Sig.
Level of profit					
Net sales	Horizontal-Vertical	.46	.648	-.588	.556
	Horizontal-Congeneric	-1.80	.073	-1.381	.167
	Horizontal-Conglomerate	-4.22	.000	-3.823	.000
	Vertical-Congeneric	-1.62	.111	-1.480	.138
	Vertical-Conglomerate	-3.31	.001	-3.158	.001
	Congeneric-Conglomerate	-1.02	.311	-1.249	.211
Gross profits	Horizontal-Vertical	-1.19	.237	-1.019	.308
	Horizontal-Congeneric	-1.57	.130	-1.533	.125
	Horizontal-Conglomerate	-2.82	.007	-2.892	.003
	Vertical-Congeneric	-.78	.441	-.617	.537
	Vertical-Conglomerate	-1.26	.211	-1.271	.203
	Congeneric-Conglomerate	-.21	.833	-.341	.732
Operating income	Horizontal-Vertical	-1.29	.199	-1.171	.241
	Horizontal-Congeneric	-1.20	.241	-1.174	.240
	Horizontal-Conglomerate	-1.90	.058	-2.109	.034
	Vertical-Congeneric	-.30	.766	-.235	.813
	Vertical-Conglomerate	-.36	.720	-.577	.563
	Congeneric-Conglomerate	.03	.974	-.112	.910
Net income	Horizontal-Vertical	-1.65	.102	-1.609	.107
	Horizontal-Congeneric	-1.29	.198	-1.085	.277
	Horizontal-Conglomerate	-1.11	.267	-1.270	.204
	Vertical-Congeneric	.01	.992	-.074	.940
	Vertical-Conglomerate	.50	.621	-.395	.692
	Congeneric-Conglomerate	.40	.691	-.256	.797
Profit rate					
Earnings per share	Horizontal-Vertical	-2.42	.020	-2.430	.015
	Horizontal-Congeneric	-1.84	.080	-1.832	.066
	Horizontal-Conglomerate	-2.43	.016	-2.388	.016
	Vertical-Congeneric	-.04	.972	-.110	.911
	Vertical-Conglomerate	.55	.583	-.618	.536
	Congeneric-Conglomerate	.52	.604	-.268	.788
Dividends per share	Horizontal-Vertical	-2.12	.040	-2.208	.027
	Horizontal-Congeneric	-1.70	.104	-1.718	.085
	Horizontal-Conglomerate	-1.85	.066	-1.879	.060
	Vertical-Congeneric	-.10	.923	-.073	.941
	Vertical-Conglomerate	.69	.495	-.811	.417
	Congeneric-Conglomerate	.72	.473	-.516	.605
Price/Earning ratio	Horizontal-Vertical	-1.87	.069	-1.961	.049
	Horizontal-Congeneric	-1.41	.174	-1.433	.151
	Horizontal-Conglomerate	-1.35	.178	-1.492	.135

	Vertical-Congeneric	-.05	.961	-.130	.895
	Vertical-Conglomerate	.79	.435	-.774	.438
	Congeneric-Conglomerate	.74	.463	-.435	.662
Return on total assets	Horizontal-Vertical	-1.62	.113	-1.521	.128
	Horizontal-Congeneric	-.77	.451	-.592	.553
	Horizontal-Conglomerate	-.64	.525	-.802	.422
	Vertical-Congeneric	.37	.714	-.433	.665
	Vertical-Conglomerate	1.01	.318	-.847	.396
	Congeneric-Conglomerate	.43	.666	-.144	.885

$H_0 : \mu_{pd} = \mu_{pe}$

$H_1 : \mu_{pd} \neq \mu_{pe}$

where μ_{pd} = mean or median value of rating scale score, post-transaction performance p, type d

μ_{pe} = mean or median value of rating scale score, post-transaction performance p, type e

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-7-1 The Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Performance** of Acquiring Enterprises

Motive or Reason	Net Sales	Gross profits	Operat-ing income	Net income	Earnings per share	Divide-nds per share	Price/ Earning ratio	Return on total assets
Economies of scale	.282 a	.283 a	.332 a	.306 a	.304 a	.270 a	.314 a	.302 a
Control of distribution channels	.232 a	.263 a	.269 a	.232 a	.278 a	.249 a	.302 a	.267 a
Reducing administrative expense	.135 a	.160 a	.153 a	.141 a	.162 a	.179 a	.213 a	.193 a
Acquiring know-how or research and development	.171 a	.154 a	.179 a	.157 a	.180 a	.149 a	.194 a	.146 a
Acquiring brand marks, patents or copyright technologies	.125	.099	.088	.079	.132 a	.109	.174 a	.143 a
Enhancing market competitiveness	.218 a	.195 a	.225 a	.174 a	.172 a	.151 a	.191 a	.138 a
Gaining rapid entry into new markets or industries	.208 a	.185 a	.175 a	.143 a	.212 a	.209 a	.180 a	.156 a
Controlling of material resources	.131 a	.051	.068	.041	.069	.022	.093	.052
Combining complementary resources	.082	.001	.032	-.010	.025	-.009	.017	.062
Resolving financial difficulties	.104	.088	.116	.078	.054	.040	.037	.084
Increasing corporate debt capacity or financing	.175 a	.077	.108	.037	.033	.021	.018	.029
Risk diversification	.099	.097	.116	.109	.115	.118	.146 a	.152 a
Increased market power	.321 a	.294 a	.274 a	.227 a	.244 a	.239 a	.282 a	.211 a
Applying for a listing on the stock market	.123	.141 a	.135 a	.114	.132 a	.117	.202 a	.154 a
Tax considerations	.145 a	.086	.113	.075	.066	.035	.076	.097
Government encouragement or support	.145 a	.108	.155 a	.125	.066	.058	.107	.137 a
Exploiting surplus funds	.041	.073	.081	.048	.090	.087	.134 a	.128
Buying below replacement cost	.097	.113	.120	.086	.104	.128	.099	.086
Gaining potential real estate or other related values	-.025	-.022	-.002	-.027	.047	.062	.065	.054
Improving management efficiency generally	.031	.034	.054	.057	.050	.032	.072	.136
Improving marketing management efficiency	.087	.117	.128	.125	.154 a	.112	.165 a	.197 a
Improving production management efficiency	.122	.154 a	.181 a	.192 a	.192 a	.168 a	.165 a	.221 a

Improving finance management efficiency	.071	.045	.087	.052	.080	.049	.080	.116
Improving personnel management efficiency	.108	.079	.084	.076	.114	.081	.125	.125
Improving purchasing management efficiency	.166 a	.136 a	.149 a	.150 a	.190 a	.165 a	.196 a	.221 a
Improving R&D management efficiency	.151 a	.091	.116	.111	.168 a	.154 a	.173 a	.172 a

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction performance 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

a = Significant at the 0.05 level, two-tailed test.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the merger motives and the post-transaction performance of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-1 Descriptive Sample Statistics of Pre-Transaction Performance of the Acquiring Enterprises relative to that of the Acquired Enterprises

Pre-transaction performance of the acquiring enterprises relative to that of the acquired enterprises	Mean*	Variance	Cases (No.)	Superior or very superior (%)	Same	Inferior or very inferior (%)
Level of profit						
Net sales	1.966	1.213	235	73.2	15.3	11.5
Gross profits	2.133	1.297	233	69.1	18.0	12.9
Operating income	2.185	1.269	232	66.4	19.8	13.8
Net income	2.154	1.267	228	67.5	19.3	13.2
Profit rate						
Earnings per share	2.268	1.363	224	62.1	21.9	16.1
Dividends per share	2.300	1.276	217	58.5	27.6	13.8
Price/Earning ratio	2.243	1.293	214	62.6	23.4	14.0
Return on total assets	2.289	1.394	225	63.6	20.0	16.4

* 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-2 The Spearman's Rank Correlation Between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Net Sales of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.120	.067	231
Gross profits	.102	.122	229
Operating income	.120	.069	228
Net income	.129	.053	224
Profit rate			
Earnings per share	.108	.108	221
Dividends per share	.140	.039	214
Price/Earning ratio	.102	.139	211
Return on total assets	.098	.143	221

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction net sales of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-3 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Gross profits of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.074	.264	230
Gross profits	.069	.298	229
Operating income	.075	.255	228
Net income	.086	.195	224
Profit rate			
Earnings per share	.035	.596	220
Dividends per share	.094	.170	214
Price/Earning ratio	-.025	.712	211
Return on total assets	.020	.762	221

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction gross profits of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-4 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Operating Income of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.122	.065	228
Gross profits	.077	.242	228
Operating income	.044	.506	227
Net income	.078	.240	224
Profit rate			
Earnings per share	.030	.652	220
Dividends per share	.111	.105	214
Price/Earning ratio	.002	.976	211
Return on total assets	.025	.707	221

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction operating income of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-5 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Net Income of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.111	.095	227
Gross profits	.088	.186	227
Operating income	.054	.413	226
Net income	.106	.112	224
Profit rate			
Earnings per share	.037	.576	220
Dividends per share	.119	.082	214
Price/Earning ratio	.009	.887	211
Return on total assets	.043	.525	221

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction net income of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-6 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Earnings Per Share of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.101	.129	224
Gross profits	.063	.348	222
Operating income	.057	.395	222
Net income	.055	.413	222
Profit rate			
Earnings per share	.055	.410	221
Dividends per share	.124	.070	214
Price/Earning ratio	.009	.894	210
Return on total assets	.027	.684	219

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction earnings per share of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-7 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Dividends Per Share of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.117	.081	223
Gross profits	.105	.118	222
Operating income	.080	.230	222
Net income	.105	.119	222
Profit rate			
Earnings per share	.107	.111	220
Dividends per share	.168	.014	214
Price/Earning ratio	.042	.545	210
Return on total assets	.086	.201	219

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction dividends per share of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-8 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Price/Earning Ratio of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.056	.413	215
Gross profits	.029	.673	214
Operating income	.081	.236	214
Net income	.048	.479	214
Profit rate			
Earnings per share	.038	.576	212
Dividends per share	.104	.135	206
Price/Earning ratio	.052	.452	208
Return on total assets	.057	.409	212

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction price/earning ratio of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-8-9 The Spearman's Rank Correlation between the Pre-Transaction Performance of Acquiring Enterprises relative to that of the Acquired Enterprises and the Post-Transaction Return on Total Assets of Acquiring Enterprises

Pre-transaction performance of acquiring enterprises relative to that of acquired enterprises	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Level of profit			
Net sales	.036	.596	215
Gross profits	-.042	.539	214
Operating income	-.016	.806	214
Net income	-.042	.537	214
Profit rate			
Earnings per share	-.060	.379	212
Dividends per share	.006	.930	206
Price/Earning ratio	-.038	.583	205
Return on total assets	-.051	.459	213

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ = Spearman's rank correlation coefficient between score on rating scale of the pre-transaction performance of acquiring enterprises relative to that of the acquired enterprises and the post-transaction return on total assets of acquiring enterprises

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-9-1 Descriptive Sample Statistics of the Acquiring Enterprise's Transaction Process Problems

Transaction process problems	Mean*	Variance	Cases (No.)
Asset Valuation	1.822	1.450	242
Goodwill Valuation	1.535	1.027	243
Contingent Loss	1.580	1.104	243
Customer Drain	1.354	0.577	243
Manager or Employee Drain	1.527	0.854	243
Personnel Arrangements	1.584	1.046	243
Shareholders against Bidding	1.362	0.703	243
Corporate Culture Differences	1.506	0.920	243
Litigation	1.256	0.374	242
Raising Finance	1.281	0.427	242
Government Regulations	1.579	1.108	242

* 1 not at all serious, 2 a little serious, 3 serious, 4 fairly serious, 5 very serious.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-9-2 Mann-Whitney U - Wilcoxon Rank Sum W Test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems

Transaction process problems	Net sales	Gross Profits	Operat-ing income	Net income	Earnings per share	Divide-nds per share	Price/ Earning ratio	Return on total assets
Asset valuation	-.502	-1.117	-1.133	-1.287	-1.950	-2.048 $_a$	-.328	-1.509
Goodwill valuation	-.677	-.983	-1.004	-.732	-1.377	-1.491	-.088	-.920
Contingent loss	-.017	-1.461	-1.480	-1.853	-2.874 $_a$	-2.443 $_a$	-1.258	-2.124 $_a$
Customer drain	-.480	-1.093	-1.074	-.800	-1.280	-1.147	-.722	-1.163
Manager or employee drain	-1.171	-.407	-.144	-.779	-.382	-.149	-.525	-.857
Personnel arrangements	-.643	-1.404	-1.316	-1.895	-2.589 $_a$	-2.722 $_a$	-1.356	-2.399 $_a$
Shareholders against bidding	-.401	-1.132	-.959	-1.233	-1.056	-1.483	-.477	-1.486
Corporate culture differences	-1.427	-.540	-.118	-.315	-1.079	-.995	-.741	-.794
Litigation	-1.956 $_a$	-1.214	-1.112	-1.167	-1.110	-1.624	-.085	-.126
Raising finance	-2.422 $_a$	-.780	-.173	-1.102	-.415	-.246	-.278	-.230
Government regulations	-2.568 $_a$	-1.646	-.785	-.627	-.143	-.030	-.146	-.082

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = median value of rating scale score, post-transaction performance p, not at all or a little serious asset valuation problem

μ_{ps} = median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious asset valuation problem

a = Significant at the 0.05 level, two-tailed test.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996

Table 7-9-3 Descriptive Sample Statistics of the Acquiring Enterprise's Government Regulations Problem (Transaction Process)

Government regulations Problem	Cases	Percent	Cumulative Percent
Not at all serious	171	70.7	70.7
A little serious	28	11.6	82.2
Serious	26	10.7	93.0
Fairly serious	8	3.3	96.3
Very serious	9	3.7	100.0
Total	242	100.0	100.0

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 7-9-4 Descriptive Sample Statistics of the Acquiring Enterprise's Shareholders against Bidding Problem (Transaction Process)

Shareholders against Bidding Problem	Cases	Percent	Cumulative Percent
Not at all serious	192	79.0	79.0
A little serious	29	11.9	90.9
Serious	12	4.9	95.9
Fairly serious	5	2.1	97.9
Very serious	5	2.1	100.0
Total	243	100.0	100.0

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-2-1 Superior Post-Transaction Profits Performance Likelihood Hypotheses and Independent Variables

Hypothesis	Dependent Variables 0 = same or inferior post-transaction performance 1 = superior post-transaction performance Independent Variables*	Expected sign**
1. Merger motive hypothesis		
	Economies of scale	-
	Control of distribution channels	-
	Reducing administrative expense	-
	Acquiring know-how or research and development	-
	Acquiring brand marks, patent or copyright technology	-
	Enhancing market competitiveness	-
	Gaining rapid entry into new markets or industries	-
	Controlling of material resources	-
	Combining complementary resources	-
	Resolving financial difficulties	-
	Increasing corporate debt capacity or financing	-
	Risk diversification	-
	Increased market power	-
	Applying for a listing on the stock market	-
	Tax considerations	-
	Government encouragement or support	-
	Exploiting surplus funds	?
	Buying below replacement cost	?
	Gaining potential real estate or other related values	?
	Improving marketing management efficiency	-
	Improving production management efficiency	-
	Improving finance management efficiency	-
	Improving personnel management efficiency	-
	Improving purchasing management efficiency	-
2. The main method of payment hypothesis		
	Cash (reserves)	+
	Cash (bank borrowing)	+
	Common stock	?
	Subscription warrants	?
	The other payment methods	?
3. Acquired firm's estimation method hypothesis		
	Book value	?
	Stock market value	?

	Replacement cost value	?
	Cash flow value	?
	The others estimation method	?
4. Pre-transaction performance hypothesis		
	Net sales	-
	Gross profits	-
	Operating income	-
	Net income	-
	Earnings per share	-
	Dividends per share	-
	Price/Earning ratio	-
	Return on total assets	-
5. Transaction process problems hypothesis		
	Asset valuation	-
	Goodwill valuation	-
	Contingent loss	-
	Customer drain	-
	Manager or employee drain	-
	Personnel arrangements	-
	Shareholders against bidding	-
	Corporate culture differences	-
	Litigation	-
	Raising finance	-
	Government regulations	-

* 1. Merger motives : 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

2. Payment methods dummy : The dummy is assigned a value one if the acquiring firm choose one of the main methods of payment.

3. Acquired firm's estimation method dummy : The dummy is assigned a value one if the acquiring firm choose one of the estimation methods for the acquired firm.

4. Pre-transaction performance : 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

5. Transaction process problems : 1 not at all serious, 2 a little serious, 3 serious, 4 fairly serious, 5 very serious.

**A negative sign of merger motives, pre-transaction performance and transaction process problems implies that the variable increases the likelihood of superior post-transaction performance and a positive sign implies the opposite.
A positive sign of the main method of payment and the acquired firm's estimation method implies that the variable increases the likelihood of superior post-transaction performance and a negative sign implies the opposite.

Table 8-3-1 Level of Profits Measures of Different Method Selection Comparisons of SPSS Logistic Regression Analysis

Post-transaction performance	Forced Entry	Forward: Conditional	Forward: LR	Forward: Wald	Backward: Wald	Forward: Wald
Probability for stepwise		Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.10 Removal:.10
Net sales						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	86.29	75.63	75.63	75.63	81.22	77.66
No. of variables in the equation	54	4	4	4	19	7
Gross profits						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	85.79	72.08	72.08	72.08	79.70	76.14
No. of variables in the equation	54	4	4	4	25	6
Operating income						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	85.79	75.63	75.63	75.63	81.22	78.17
No. of variables in the equation	54	4	4	4	24	13
Net income						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	84.26	71.07	71.07	71.07	84.26	75.63
No. of variables in the equation	54	3	3	3	25	7
Cases	197	197	197	197	197	197

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-2 Profit Rate Measures of Different Method Selection Comparisons of SPSS Logistic Regression Analysis

Post-transaction performance	Forced Entry	Forward: Conditional	Forward: LR	Forward: Wald	Backward: Wald	Forward: Wald
Probability for stepwise		Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.05 Removal:.10	Enter:.10 Removal:.10
Earnings per share						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	87.31	73.60	73.60	73.60	80.71	74.11
No. of variables in the equation	54	3	3	3	16	5
Dividends per share						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	83.25	76.14	76.14	76.14	78.68	76.14
No. of variables in the equation	54	8	8	8	15	10
Price/Earnings ratio						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	82.56	70.77	70.77	70.77	78.46	71.28
No. of variables in the equation	54	3	3	3	16	4
Return on total assets						
Model Chi-Squire Significance	.000	.000	.000	.000	.000	.000
Correct classification (%)	82.29	72.40	72.40	72.40	75.52	74.48
No. of variables in the equation	54	1	1	1	18	4
Cases	197	197	197	197	197	197

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-3 Parameter Estimates for the Logistic Regression Model (Net Sales Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Reducing administrative expense	-.409	.159	6.609	.010	-.139
Gaining rapid entry into new markets or industries	-.502	.193	6.748	.009	-.141
Increased market power	-.528	.143	13.588	.000	-.221
Buying below replacement cost	.344	.167	4.256	.039	.097
Cash (bank borrowing)	1.151	.670	2.949	.085	.063
Personnel arrangements	-.413	.226	3.337	.067	-.075
Government regulations	.438	.209	4.407	.035	.100
Constant	4.051	.938	18.630	.000	
Model Chi-Square (df = 7)	49.688			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-4 Parameter Estimates for the Logistic Regression Model (Gross Profits Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.389	.162	5.727	.016	-.122
Reducing administrative expense	-.332	.155	4.575	.032	-.102
Increased market power	-.296	.146	4.066	.043	-.091
Buying below replacement cost	1.465	.653	5.031	.024	.110
Dividends per share relative to that of acquired firm before the transaction	-.792	.473	2.804	.094	-.057
Price/Earning ratio relative to that of acquired firm before the transaction	1.119	.479	5.450	.019	.118
Constant	2.953	.617	22.866	.000	
Model Chi-Square (df = 6)	44.726			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-5 Parameter Estimates for the Logistic Regression Model (Operating Income Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.727	.181	16.033	.000	-.237
Reducing administrative expense	-.538	.190	8.023	.004	-.155
Acquiring brand marks, patents or copyright technologies	.607	.228	7.074	.007	.142
Combining complementary resources	.314	.161	3.791	.051	.087
Applying for a listing on the stock market	-.377	.201	3.525	.060	-.078
Government encouragement or support	-.393	.210	3.493	.061	-.077
Improving marketing management efficiency	-.276	.168	2.678	.101	-.052
Cash (bank borrowing)	2.781	.859	10.485	.001	.184
The other payment methods	-2.135	1.019	4.386	.036	-.097
Net sales relative to that of acquired firm before the transaction	-.938	.284	10.912	.001	-.188
Return on total assets relative to that of acquired firm before the transaction	.998	.273	13.334	.000	.213
Customer drain	-.738	.297	6.157	.013	-.129
Government regulations	.508	.235	4.671	.030	.103
Constant	4.601	1.168	15.515	.000	
Model Chi-Square (df = 13)	73.781			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-6 Parameter Estimates for the Logistic Regression Model (Net Income Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Economies of scale	-.262	.133	3.847	.049	-.085
Control of distribution channels	-.329	.158	4.334	.037	-.095
Reducing administrative expense	-.289	.164	3.093	.078	-.065
Controlling of material resources	.380	.165	5.276	.021	.113
Improving marketing management efficiency	-.350	.149	5.456	.019	-.116
Cash (bank borrowing)	2.061	.709	8.445	.003	.159
The other payment methods	-1.726	.956	3.260	.071	-.070
Constant	2.649	.605	19.153	.000	
Model Chi-Square (df = 7)	48.303			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-7 Parameter Estimates for the Logistic Regression Model (Earnings Per Share Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.664	.137	23.212	.000	-.285
Reducing administrative expense	-.362	.153	5.582	.018	-.117
Cash (bank borrowing)	1.453	.654	4.939	.026	.106
Replacement cost value	.902	.454	3.954	.046	.086
Contingent loss	-.417	.170	6.006	.014	-.124
Constant	3.907	.691	31.938	.000	
Model Chi-Square (df = 5)	49.029			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-8 Parameter Estimates for the Logistic Regression Model (Dividends Per Share Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.546	.157	12.086	.000	-.194
Controlling of material resources	.462	.172	7.201	.007	.139
Government encouragement or support	-.369	.161	5.238	.022	-.110
Improving purchasing management efficiency	-.370	.160	5.323	.021	-.111
Stock market value	2.155	1.142	3.557	.059	.076
Replacement cost value	1.541	.476	10.455	.001	.178
Goodwill valuation	.478	.295	2.623	.105	.048
Contingent loss	-.638	.269	5.600	.018	-.116
Manager or employee drain	.848	.413	4.202	.040	.091
Personnel arrangements	-1.090	.360	9.154	.002	-.164
Constant	3.319	.884	14.100	.000	
Model Chi-Square (df = 10)	63.297			.000	
Cases = 197					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-9 Parameter Estimates for the Logistic Regression Model (Price/Earning Ratio Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.486	.154	9.926	.001	-.174
Controlling of material resources	.327	.157	4.304	.038	.094
Increased market power	-.368	.147	6.232	.012	-.127
The other payment methods	-1.508	.909	2.749	.097	-.053
Constant	2.062	.532	15.015	.000	
Model Chi-Square (df = 4)	40.723			.000	
Cases = 195					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-10 Parameter Estimates for the Logistic Regression Model (Return on total assets Post-Transaction Performance)

Independent Variable	Estimated coefficient	Standard error	Wald Statistic	Statistical significance	Partial correlation
Control of distribution channels	-.717	.147	23.705	.000	-.292
Controlling of material resources	.339	.160	4.493	.034	.099
Government encouragement or support	-.411	.151	7.425	.006	-.146
Personnel arrangements	-.417	.189	4.823	.028	-.105
Constant	3.803	.811	21.988	.000	
Model Chi-Square (df = 7)	40.898			.000	
Cases = 192					

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-11 Classification Table for the Acquiring Firm's Post-Transaction Level of Profits Performance

		Predicted (Net Sales)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Net Sales)	Same or inferior	26	31	45.61
	Superior	13	127	90.71
	Overall			77.66
		Predicted (Gross profits)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Gross profits)	Same or inferior	31	32	49.21
	Superior	15	119	88.81
	Overall			76.14
		Predicted (Operating Income)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Operating Income)	Same or inferior	37	28	56.92
	Superior	15	117	88.64
	Overall			78.17
		Predicted (Net Income)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Net Income)	Same or inferior	31	37	45.59
	Superior	11	118	91.47
	Overall			75.63

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 8-3-12 Classification Table for the Acquiring Firm's Post-Transaction Profit Rate Performance

		Predicted (Earnings Per Share)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Earnings Per Share)	Same or inferior	42	32	56.76
	Superior	19	104	84.55
	Overall			74.11
		Predicted (Dividends Per Share)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Dividends Per Share)	Same or inferior	51	29	63.75
	Superior	18	99	84.62
	Overall			76.14
		Predicted (Price/Earning Ratio)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Price/Earning Ratio)	Same or inferior	45	30	60.00
	Superior	26	94	78.33
	Overall			71.28
		Predicted (Return on total assets)		
		Same or inferior	Superior	Percent Correct (%)
Observed (Return on total assets)	Same or inferior	40	31	56.34
	Superior	18	103	85.12
	Overall			74.48

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Table 9-3-1 Descriptive Sample Statistics of Taiwanese Enterprises' Mergers and Acquisitions

	Acquired firms	Acquiring firms	Non-transaction firms
1990	1	11	1,791
1991	11	18	1,791
1992	8	23	1,791
1993	16	34	1,791
1994	22	44	1,791
1995	25	56	1,791
Total	83	186	

Sources:

(1)Joint Credit Information Centre Database, Taiwan, ROC, August 1997

(2)Department of Commerce, Ministry of Economic Affairs, ROC, March 1996

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC, March 1996

(4)Securities and Exchange Commission, Ministry of Finance, ROC, March 1996

Table 9-3-2 Observed and Expected Acquired Firms for Transaction Year

Transaction Year	Identified Acquired firms	Observed Acquired firms	Expected Acquired firms	Residual
1990	12	1	3.49	-2.49
1991	31	11	9.03	1.97
1992	40	8	11.65	-3.65
1993	55	16	16.02	-.02
1994	67	22	19.51	2.49
1995	80	25	23.30	1.70
Total	285	83	83	0

Chi-Square 3.7962 D.F. 5 Significance .5791

Sources:

(1)Joint Credit Information Centre Database, Taiwan, ROC, August 1997

(2)Department of Commerce, Ministry of Economic Affairs, ROC, March 1996

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC, March 1996

(4)Securities and Exchange Commission, Ministry of Finance, ROC, March 1996

Table 9-3-3 Observed and Expected Acquiring Firms for Transaction Year

Transaction Year	Identified Acquiring firms	Observed Acquiring firms	Expected Acquiring firms	Residual
1990	12	11	7.83	3.17
1991	31	18	20.23	-2.23
1992	40	23	26.11	-3.11
1993	55	34	35.89	-1.89
1994	67	44	43.73	.27
1995	80	56	52.21	3.79
Total	285	186	186	0

Chi-Square 2.2741 D.F. 5 Significance .8101

Sources:

(1)Joint Credit Information Centre Database, Taiwan, ROC, August 1997

(2)Department of Commerce, Ministry of Economic Affairs, ROC, March 1996

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC, March 1996

(4)Securities and Exchange Commission, Ministry of Finance, ROC, March 1996

Table 9-4-1 Descriptive Sample Statistics of Taiwanese Enterprises' Average Size and Operating and Financial Performance Over the One Year Prior to the Transaction Year, by Transaction Year

Transaction year	1991	1992	1993	1994	1995
Total assets					
Acquired firms					
Mean	229,605,000	1,416,353,000	843,792,000	367,652,000	1,482,744,000
Std. Dev.	83,554,000	2,271,418,000	834,730,000	521,425,000	3,717,569,000
Cases	11	6	10	14	23
Acquiring firms					
Mean	3,615,074,000	2,843,349,000	2,047,069,000	2,274,787,000	2,730,932,000
Std. Dev.	4,173,768,000	4,958,855,000	2,537,422,000	3,568,706,000	6,623,874,000
Cases	14	18	24	29	44
Non-trans. firms					
Mean	967,499,000	1,101,121,000	1,208,884,000	1,342,081,000	1,537,487,000
Std. Dev.	2,912,586,000	3,232,070,000	3,550,505,000	3,874,093,000	4,583,418,000
Cases	1,744	1,744	1,744	1,744	1,744
Net sales					
Acquired firms					
Mean	279,483,000	485,554,000	613,765,000	567,502,000	794,624,000
Std. Dev.	284,083,000	605,852,000	311,594,000	1,222,594,000	1,738,916,000
Cases	11	6	10	14	23
Acquiring firms					
Mean	6,557,602,000	2,215,979,000	1,187,968,000	1,810,663,000	1,970,067,000
Std. Dev.	8,162,134,000	4,813,016,000	1,422,265,000	3,975,016,000	6,168,595,000
Cases	14	18	24	29	44
Non-trans. firms					
Mean	794,554,000	903,832,000	951,989,000	1,010,213,000	1,148,797,000
Std. Dev.	2,255,767,000	2,569,502,000	2,643,198,000	2,767,009,000	3,260,805,000
Cases	1,743	1,741	1,741	1,742	1,742
Earnings per share					
Acquired firms					
Mean	-.177	-.127	-.068	.078	.194
Std. Dev.	.334	.354	.601	.327	.469
Cases	11	6	10	14	23
Acquiring firms					
Mean	.094	.346	.115	.049	.035
Std. Dev.	.125	.619	.370	.167	.390
Cases	14	18	24	29	44
Non-trans. firms					
Mean	.189	.113	.119	.105	.123
Std. Dev.	4.204	.630	.636	.594	.579
Cases	1,740	1,744	1,740	1,744	1,744
Return on total assets					

Acquired firms					
Mean	-.098	-.028	-.005	-.008	.023
Std. Dev.	.210	.065	.131	.102	.099
Cases	11	6	10	14	23
Acquiring firms					
Mean	.030	.053	.008	.017	.018
Std. Dev.	.044	.081	.082	.054	.061
Cases	14	18	24	29	44
Non-trans. firms					
Mean	.014	.021	.020	.018	.023
Std. Dev.	.068	.062	.077	.072	.070
Cases	1,744	1,744	1,744	1,744	1,744
Current ratio					
Acquired firms					
Mean	2.823	4.416	1.015	3.251	2.758
Std. Dev.	2.875	8.025	1.040	7.145	4.081
Cases	11	6	10	14	23
Acquiring firms					
Mean	6.386	2.340	3.012	1.621	1.813
Std. Dev.	12.680	2.522	9.246	2.268	3.582
Cases	14	18	24	29	44
Non-trans. firms					
Mean	1.273	1.415	1.513	1.578	1.773
Std. Dev.	1.595	3.569	4.536	6.195	9.955
Cases	1,384	1,383	1,383	1,383	1,383
Cash flow ratio					
Acquired firms					
Mean			.320	1.926	.311
Std. Dev.			.625	6.775	.720
Cases			10	14	21
Acquiring firms					
Mean			.056	.042	.001
Std. Dev.			.332	.445	.476
Cases			22	29	42
Non-trans. firms					
Mean			.206	.100	.177
Std. Dev.			.931	2.791	.813
Cases			1,743	1,742	1,744

Sources:

(1)Joint Credit Information Centre Database, Taiwan, ROC, August 1997

(2)Department of Commerce, Ministry of Economic Affairs, ROC, March 1996

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC, March 1996

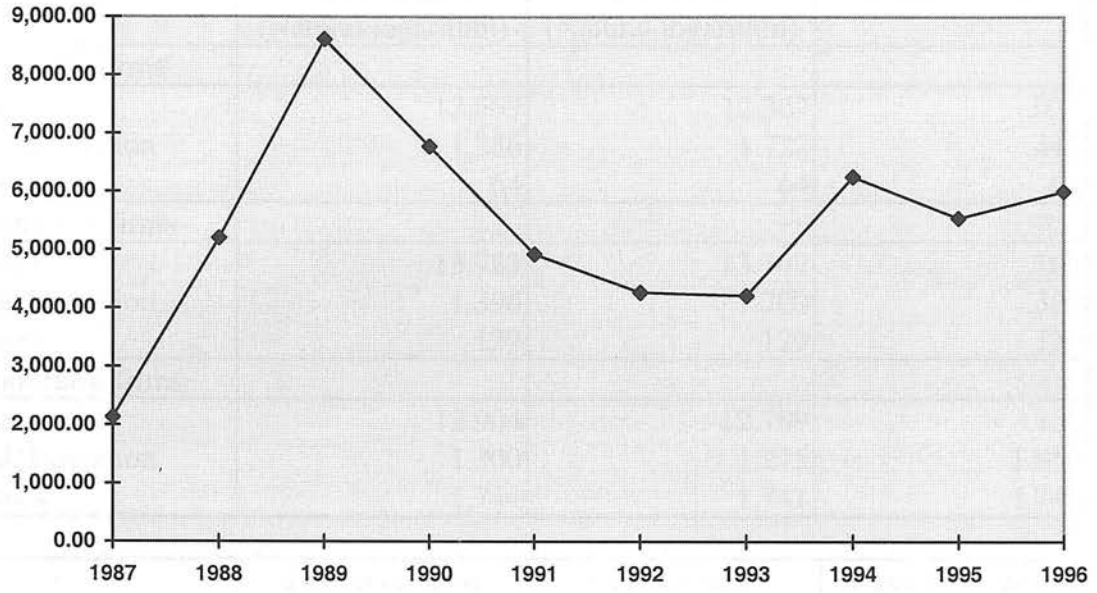
(4)Securities and Exchange Commission, Ministry of Finance, ROC, March 1996

Table 9-4-2 Stock Market Yearly Average Price Index and Economic Growth Rate In Taiwan

	Stock Market Yearly Average Price Index (1966=100)	Economic Growth Rate (%)
1987	2,135.03	12.74
1988	5,202.21	7.84
1989	8,616.14	8.23
1990	6,775.32	5.39
1991	4,928.83	7.55
1992	4,271.63	6.76
1993	4,214.78	6.32
1994	6,252.99	6.54
1995	5,543.75	6.03
1996	6,003.72	5.71

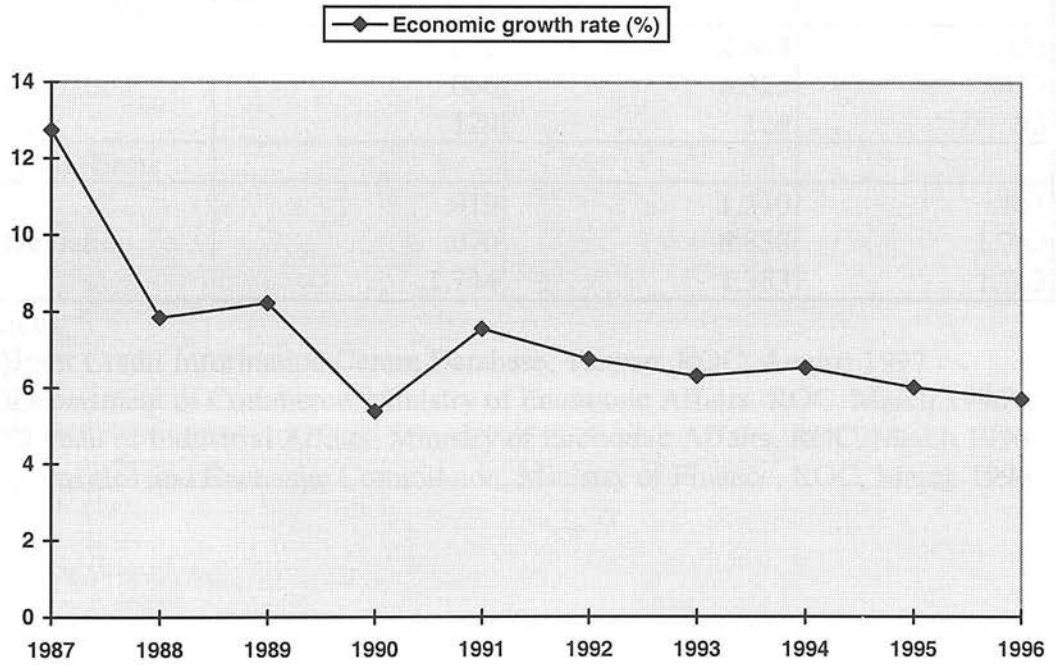
Source: Monthly Statistics of the Republic of China, June 1997.

Figure 9-4-1 Taiwan Stock Price Index Trends (1966 = 100)



Source: Monthly Statistics of the Republic of China, June 1997.

Figure 9-4-2 Economic Growth Trends in Taiwan



Source: Monthly Statistics of the Republic of China, June 1997.

Table 9-5-1 Descriptive Sample Statistics of Taiwanese Enterprises' Average Size and Operating and Financial Performance Over the One Year Prior to the Transaction Year

	Total assets (Natural logarithm)	Net sales (Natural logarithm)	Earnings per share
Acquired firms			
Mean	12.669	12.367	.033
Std. Deviation	1.286	1.722	.447
Cases	64	64	64
Acquiring firms			
Mean	13.783	13.302	.103
Std. Deviation	1.396	1.700	.380
Cases	129	129	129
Non-trans. firms			
Mean	12.904	12.799	.130
Std. Deviation	1.300	1.275	1.956
Cases	1,744	1,741	1,740

	Return on total assets	Current ratio	Cash flow ratio
Acquired firms			
Mean	-.013	2.760	.815
Std. Deviation	.131	4.871	3.801
Cases	64	64	45
Acquiring firms			
Mean	.022	2.563	.026
Std. Deviation	.066	6.325	.433
Cases	129	129	93
Non-trans. firms			
Mean	.019	1.510	.161
Std. Deviation	.070	5.888	1.762
Cases	1,744	1,383	1,742

Sources:

(1)Joint Credit Information Centre Database, Taiwan, ROC, August 1997

(2)Department of Commerce, Ministry of Economic Affairs, ROC, March 1996

(3)Bureau of Industrial Affairs, Ministry of Economic Affairs, ROC, March 1996

(4)Securities and Exchange Commission, Ministry of Finance, ROC, March 1996

Table 9-5-2 Independent Samples T-tests for Average Size and Operating and Financial Performance Over the One Year Prior to the Transaction Year

	Total assets (Natural logarithm)	Net sales (Natural logarithm)	Earnings per share
Acd=Non(Acd)			
T-value	-1.51	-2.72	-.40
2-Tail Sign.	.131	.006	.693
Acd=Acg			
T-value	-5.50	-3.58	-1.12
2-Tail Sign.	.000	.000	.263
Acd=Non(Trans.)			
T-value	-1.44	-2.70	-.39
2-Tail Sign.	.150	.007	.693
Acg=Non(Trans.)			
T-value	7.62	3.34	-.16
2-Tail Sign.	.000	.001	.875

	Return on total assets	Current ratio	Cash flow ratio
Acd=Non(Acd)			
T-value	-2.03	2.01	1.16
2-Tail Sign.	.047	.049	.253
Acd=Acg			
T-value	-2.08	.22	1.39
2-Tail Sign.	.041	.827	.172
Acd=Non(Trans.)			
T-value	-2.02	2.04	1.15
2-Tail Sign.	.047	.046	.255
Acg=Non(Trans.)			
T-value	.47	1.87	-.74
2-Tail Sign.	.641	.063	.462

$H_0 : \mu_{np} = \mu_{nq}$

$H_1 : \mu_{np} \neq \mu_{nq}$

where μ_p = mean value of firm's size or performance n, group p

μ_q = mean value of firm's size or performance n, group q

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 9-6-1 Paired Samples T-tests for Average Size and Operating and Financial Performance Over the One Year Prior to the Transaction Year

	Total assets (Natural logarithm)	Net sales (Natural logarithm)	Earnings per share
Acquired firms			
Mean	12.689	12.376	.030
Std. Dev.	1.410	1.830	.467
Acquiring firms			
Mean	14.249	13.861	.200
Std. Dev.	1.336	1.733	.932
Number of Pairs	50	50	50
Acd = Acg			
T-value	-6.92	-4.16	-1.14
2-Tail Sign.	.000	.000	.261

	Return on total assets	Current ratio	Cash flow ratio
Acquired firms			
Mean	-.018	2.781	.975
Std. Dev.	.141	4.951	4.245
Acquiring firms			
Mean	.023	5.138	.038
Std. Dev.	.075	12.419	.407
Number of Pairs	50	50	36
Acd = Acg			
T-value	-1.89	-1.29	1.31
2-Tail Sign.	.065	.203	.199

$H_0 : \mu_{np} = \mu_{nq}$

$H_1 : \mu_{np} \neq \mu_{nq}$

where μ_{np} = mean value of firm's size or performance n, group of acquired firms

μ_{nq} = mean value of firm's size or performance n, group of acquiring firms

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-3-1 Correlation Matrix Coefficients of Logistic Regression Model Variables

Independent variable	Size	$Size^2$	Growth	Profitability	$Profitability^2$	Change in Profitability	Liquidity	$Liquidity^2$
Size	1.000	$.997_a$	$.065_a$	.007	-.029	$.282_a$	-.001	-.023
$Size^2$	997_a	1.000	$.065_a$	.008	-.028	$.281_a$	.001	-.024
Growth	$.065_a$	$.065_a$	1.000	.009	.000	-.003	-.012	.023
Profitability	.007	.008	.009	1.000	$.857_a$	.035	.020	$-.051_b$
$Profitability^2$	-.029	-.028	.000	$.857_a$	1.000	-.019	.008	-.037
Change in Profitability	$.282_a$	$.281_a$	-.003	.035	-.019	1.000	$-.294_a$	$.248_a$
Liquidity	-.001	.001	-.012	.020	.008	$-.294_a$	1.000	$-.126_a$
$Liquidity^2$	-.023	-.024	.023	$-.051_b$	-.037	$.248_a$	$-.126_a$	1.000

a = Significant at the 0.01 level, two-tailed test.
b = Significant at the 0.05 level, two-tailed test.

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-1 Parameter Estimates for Various Logistic Regression Models to Distinguish between Acquired and Non-Acquired Firms Over the One Year Prior to the Transaction Year
(Dependent variable is Log [Prob.(f is acquired) / 1- Prob.(f is acquired)])

Independent Variable			Estimated coefficient		
	Model 1	Model 2	Model 3	Model 4	Model 5
Size [Ln(total assets$_{t-1}$)]	-.144 (1.695)$_c$	-.625 (.187)	-.049 (.143)	.367 (.028)	-.075 (.326)
Size^2 [Ln(total assets$_{t-1}$)]^2		.018 (.106)		-.016 (.039)	
Growth [(TA$_{t-1}$-TA$_{t-2}$)/TA$_{t-2}$]			.021 (.141)	.017 (.082)	.018 (.108)
Profitability (Return on total assets$_{t-1}$)	-7.316$_a$ (14.734)	-8.720$_a$ (12.509)	-6.453$_a$ (6.201)	-8.485$_a$ (7.251)	-6.533$_a$ (6.915)
Profitability^2 (Return on total assets$_{t-1}$)^2		-1.186 (.063)		-7.883 (.840)	
Change in Profitability (ROTA$_{t-1}$-ROTA$_{t-2}$)			-8.617$_a$ (14.412)	-7.619$_a$ (11.822)	-7.290$_a$ (11.355)
Liquidity (Current ratio$_{t-1}$)	.019 (2.290)	.410$_a$ (14.750)		.080 (2.215)	.080 (2.307)
Liquidity^2 (Current ratio$_{t-1}$)^2		-.011$_a$ (5.846)		-.000 (.566)	-.000 (.651)
Constant	-1.313 (.857)	1.318 (.019)	-3.183$_b$ (3.594)	-5.700 (.160)	-2.748 (2.640)
-2 Log Likelihood	506.629	484.943	380.300	360.515	361.787
Chi-Square	21.986	43.672	29.648	30.928	29.655
Degree of Freedom	3	6	4	8	6
Significance Levels	.000	.000	.000	.000	.000
Number of Cases	1,570	1,570	1,881	1,521	1,521

a = Significant at the 0.05 level, two-tailed test.
b = Significant at the 0.10 level, two-tailed test.
^{c} The Wald statistic $W_k^2 = [b_k / (\text{standard error of } b_k)]^2$, computed to test for the statistical significance of individual coefficients, is shown in parentheses for each coefficient estimate.

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-2 Classification Table for the Acquired and Non-Acquired Firms

Model 1		Predicted		
		Non-Acquired firms	Acquired firms	Percent Correct (%)
Observed	Non-Acquired firms	1,507	0	100.00
	Acquired firms	62	1	1.59
	Overall			96.05
Model 2		Predicted		
		Non-Acquired firms	Acquired firms	Percent Correct (%)
Observed	Non-Acquired firms	1,506	1	99.93
	Acquired firms	60	3	4.76
	Overall			96.11
Model 3		Predicted		
		Non-Acquired firms	Acquired firms	Percent Correct (%)
Observed	Non-Acquired firms	1,837	1	99.95
	Acquired firms	40	3	6.98
	Overall			97.82
Model 4		Predicted		
		Non-Acquired firms	Acquired firms	Percent Correct (%)
Observed	Non-Acquired firms	1,477	1	99.93
	Acquired firms	39	4	9.30
	Overall			97.37
Model 5		Predicted		
		Non-Acquired firms	Acquired firms	Percent Correct (%)
Observed	Non-Acquired firms	1,477	1	99.93
	Acquired firms	39	4	9.30
	Overall			97.37

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-3 Parameter Estimates for Various Logistic Regression Models to Distinguish between Acquired and Acquiring Firms Over the One Year Prior to the Transaction Year
(Dependent variable is Log [Prob.(f is acquired) / 1- Prob.(f is acquired)])

Independent Variable			Estimated coefficient		
	Model 1	Model 2	Model 3	Model 4	Model 5
Size [Ln(total assets$_{t-1}$)]	-.654$_a$ (18.998)$_c$	-2.538 (1.108)	-.664$_a$ (13.420)	-4.696 (2.555)	-.675$_a$ (13.728)
Size^2 [Ln(total assets$_{t-1}$)]^2		.070 (.625)		.147 (1.906)	
Growth [(TA$_{t-1}$-TA$_{t-2}$)/TA$_{t-2}$]			-.170 (.627)	-.186 (.570)	-.212 (.770)
Profitability (Return on total assets$_{t-1}$)	-2.861 (2.174)	-2.635 (1.234)	-5.196$_b$ (2.969)	-4.503 (1.976)	-4.686 (2.240)
Profitability^2 (Return on total assets$_{t-1}$)^2		29.955$_b$ (3.245)		22.413 (1.092)	
Change in Profitability (ROTA$_{t-1}$-ROTA$_{t-2}$)			-1.175 (.340)	-1.713 (.574)	-1.803 (.665)
Liquidity (Current ratio$_{t-1}$)	.009 (.120)	.150 (1.861)		-.108 (.737)	-.094 (.593)
Liquidity^2 (Current ratio$_{t-1}$)^2		-.004 (1.109)		.002 (.551)	.002 (.441)
Constant	7.926$_a$ (16.492)	20.037 (1.527)	8.139$_a$ (11.744)	35.461$_b$ (3.121)	8.423$_a$ (12.139)
-2 Log Likelihood	206.944	198.733	142.678	138.740	142.024
Chi-Square	31.201	39.412	27.795	31.732	28.448
Degree of Freedom	3	6	4	8	6
Significance Levels	.000	.000	.000	.000	.000
Number of Cases	186	186	137	137	137

a = Significant at the 0.05 level, two-tailed test.
b = Significant at the 0.10 level, two-tailed test.
[c] The Wald statistic $W_k^2 = [b_k / (\text{standard error of } b_k)]^2$, computed to test for the statistical significance of individual coefficients, is shown in parentheses for each coefficient estimate.

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-4 Classification Table for the Acquired and Acquiring Firms

Model 1		Predicted		
		Acquiring firms	Acquired firms	Percent Correct (%)
Observed	Acquiring firms	110	13	89.43
	Acquired firms	36	27	42.86
	Overall			73.68
Model 2		Predicted		
		Acquiring firms	Acquired firms	Percent Correct (%)
Observed	Acquiring firms	111	12	90.24
	Acquired firms	35	28	44.44
	Overall			74.73
Model 3		Predicted		
		Acquiring firms	Acquired firms	Percent Correct (%)
Observed	Acquiring firms	90	4	95.74
	Acquired firms	23	20	46.51
	Overall			80.29
Model 4		Predicted		
		Acquiring firms	Acquired firms	Percent Correct (%)
Observed	Acquiring firms	88	6	93.62
	Acquired firms	25	18	41.86
	Overall			77.37
Model 5		Predicted		
		Acquiring firms	Acquired firms	Percent Correct (%)
Observed	Acquiring firms	88	6	93.62
	Acquired firms	25	18	41.86
	Overall			77.37

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-5 Parameter Estimates for Various Logistic Regression Models to Distinguish between Acquired and Non-Transaction Firms Over the One Year Prior to the Transaction Year
(Dependent variable is Log [Prob.(f is acquired) / 1- Prob.(f is acquired)])

Independent Variable			Estimated coefficient		
	Model 1	Model 2	Model 3	Model 4	Model 5
Size [Ln(total assets$_{t-1}$)]	-.091 (.664)$_c$	-.585 (.162)	-.032 (.056)	-.143 (.004)	-.047 (.122)
Size^2 [Ln(total assets$_{t-1}$)]^2		.018 (.113)		.004 (.003)	
Growth [(TA$_{t-1}$-TA$_{t-2}$)/TA$_{t-2}$]			.540 (2.482)	.551 (2.403)	.593b (3.052)
Profitability (Return on total assets$_{t-1}$)	-7.643$_a$ (15.174)	-9.784$_a$ (14.511)	-5.434$_b$ (3.346)	-8.132$_a$ (5.478)	-5.822$_a$ (4.500)
Profitability^2 (Return on total assets$_{t-1}$)^2		-2.803 (.322)		-10.764 (1.101)	
Change in Profitability (ROTA$_{t-1}$-ROTA$_{t-2}$)			-10.393$_a$ (9.993)	-9.588$_a$ (7.940)	-8.571$_a$ (8.660)
Liquidity (Current ratio$_{t-1}$)	.021 (2.548)	.467$_a$ (18.062)		.134$_a$ (4.928)	.133$_a$ (5.095)
Liquidity^2 (Current ratio$_{t-1}$)^2		-.012$_a$ (6.997)		-.000 (1.502)	-.000 (1.638)
Constant	-1.907 (1.761)	.726 (.005)	-3.440$_a$ (3.901)	-2.686 (.038)	-3.207$_b$ (3.353)
-2 Log Likelihood	496.708	471.185	370.786	347.521	349.293
Chi-Square	21.406	46.929	34.701	38.353	36.581
Degree of Freedom	3	6	4	8	6
Significance Levels	.000	.000	.000	.000	.000
Number of Cases	1,447	1,447	1,787	1,427	1,427

a = Significant at the 0.05 level, two-tailed test.
b = Significant at the 0.10 level, two-tailed test.
c = The Wald statistic $W_k^2 = [b_k / (\text{standard error of } b_k)]^2$, computed to test for the statistical significance of individual coefficients, is shown in parentheses for each coefficient estimate.

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-6 Classification Table for the Acquired and Non-Transaction Firms

Model 1		Predicted		
		Non-Transaction firms	Acquired firms	Percent Correct (%)
Observed	Non-Transaction firms	1,383	1	99.93
	Acquired firms	62	1	1.59
	Overall			95.65
Model 2		Predicted		
		Non-Transaction firms	Acquired firms	Percent Correct (%)
Observed	Non-Transaction firms	1,382	2	99.86
	Acquired firms	60	3	4.76
	Overall			95.72
Model 3		Predicted		
		Non-Transaction firms	Acquired firms	Percent Correct (%)
Observed	Non-Transaction firms	1,743	1	99.94
	Acquired firms	38	5	11.63
	Overall			97.82
Model 4		Predicted		
		Non-Transaction firms	Acquired firms	Percent Correct (%)
Observed	Non-Transaction firms	1,384	0	100.00
	Acquired firms	37	6	13.95
	Overall			97.41
Model 5		Predicted		
		Non-Transaction firms	Acquired firms	Percent Correct (%)
Observed	Non-Transaction firms	1,383	1	99.93
	Acquired firms	37	6	13.95
	Overall			97.34

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-7 Parameter Estimates for Various Logistic Regression Models to Distinguish between Acquiring and Non-Transaction Firms Over the One Year Prior to the Transaction Year
(Dependent variable is Log [Prob.(f is acquiring) / 1- Prob.(f is acquiring)])

Independent Variable			Estimated coefficient		
	Model 1	Model 2	Model 3	Model 4	Model 5
Size [Ln(total assets$_{t-1}$)]	.468$_a$ (45.472)$_c$	2.319$_b$ (3.704)	.447$_a$ (32.107)	3.375$_a$ (4.911)	.449$_a$ (30.247)
Size^2 [Ln(total assets$_{t-1}$)]^2		-.067 (2.399)		-.104$_b$ (3.688)	
Growth [(TA$_{t-1}$-TA$_{t-2}$)/TA$_{t-2}$]			1.436$_a$ (21.030)	1.398$_a$ (17.846)	1.426$_a$ (18.156)
Profitability (Return on total assets$_{t-1}$)	-2.758 (2.119)	-3.401$_b$ (2.896)	1.971 (.739)	-.141 (.003)	-.122 (.002)
Profitability^2 (Return on total assets$_{t-1}$)^2		-5.619 (.402)		-4.103 (.269)	
Change in Profitability (ROTA$_{t-1}$-ROTA$_{t-2}$)			-10.027$_a$ (12.914)	-7.297$_a$ (5.862)	-6.809$_a$ (5.411)
Liquidity (Current ratio$_{t-1}$)	.026$_a$ (4.451)	.137$_a$ (9.461)		.254$_a$ (6.349)	.249$_a$ (5.772)
Liquidity^2 (Current ratio$_{t-1}$)^2		-.000 (1.294)		-.006 (2.284)	-.005 (1.847)
Constant	-8.650$_a$ (84.061)	-21.415$_a$ (6.604)	-9.294$_a$ (75.036)	-29.605$_a$ (7.826)	-9.379$_a$ (70.601)
-2 Log Likelihood	808.419	794.460	659.006	607.281	611.725
Chi-Square	48.661	62.620	88.989	98.078	93.635
Degree of Freedom	3	6	4	8	6
Significance Levels	.000	.000	.000	.000	.000
Number of Cases	1,508	1,508	1,839	1,479	1,479

a = Significant at the 0.05 level, two-tailed test.
b = Significant at the 0.10 level, two-tailed test.
[c] The Wald statistic $W_k^2 = [b_k / (\text{standard error of } b_k)]^2$, computed to test for the statistical significance of individual coefficients, is shown in parentheses for each coefficient estimate.

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

Table 10-4-8 Classification Table for the Acquiring and Non-Transaction Firms

Model 1		Predicted		
		Non-Transaction firms	Acquiring firms	Percent Correct (%)
Observed	Non-Transaction firms	1,383	1	99.93
	Acquiring firms	124	0	.00
	Overall			91.71
Model 2		Predicted		
		Non-Transaction firms	Acquiring firms	Percent Correct (%)
Observed	Non-Transaction firms	1,384	0	100.00
	Acquiring firms	120	4	3.23
	Overall			92.04
Model 3		Predicted		
		Non-Transaction firms	Acquiring firms	Percent Correct (%)
Observed	Non-Transaction firms	1,743	1	99.94
	Acquiring firms	88	7	7.37
	Overall			95.16
Model 4		Predicted		
		Non-Transaction firms	Acquiring firms	Percent Correct (%)
Observed	Non-Transaction firms	1,383	1	99.93
	Acquiring firms	88	7	7.37
	Overall			93.98
Model 5		Predicted		
		Non-Transaction firms	Acquiring firms	Percent Correct (%)
Observed	Non-Transaction firms	1,383	1	99.93
	Acquiring firms	87	8	8.42
	Overall			94.05

Source: Own calculations based on financial data from the Joint Credit Information Centre Database, Taiwan, ROC, August 1997.

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Appendix 1

Questionnaire Addressing Mergers and Acquisitions in Taiwan

Date: 27 May 1996

To whom it may concern:

We are studying mergers and acquisitions in the context of Taiwan's economic environment. This questionnaire is for the purpose of academic research, and your co-operation will make a significant contribution to our knowledge. We would appreciate it if you would give us 20 minutes of your time and complete this questionnaire. Your responses will remain confidential. Please mark the appropriate column(s) accompanying each question. You may return your completed questionnaire in the pre-paid envelope provided. If you are interested in the findings of this research, please attach your business card to your reply. Thank you very much for your co-operation.

Yours sincerely,

The University of Edinburgh
Department of Business Studies
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Please complete and return the questionnaire before 15 June 1996.

Questionnaire Addressing Mergers and Acquisitions in Taiwan
(Transactions during 1990 to 1995)

1. If your company has acquired another between 1990 and 1995, how many of the following types of transaction has it been involved in?

(1)No. of mergers ----------( )
(2)No. of consolidations----------( )
(3)No. of acquisitions of stock----------( )
(4)No. of acquisitions of assets----------( )

Throughout this questionnaire, if your company has entered into more than one transaction, please label the largest of these (in terms of assets transacted) as "A", the second largest as "B", etc.

2. How would you classify each of your transactions? (Please tick the appropriate column)

	1st transaction	2nd transaction	3rd transaction	4th transaction
Merger				
Consolidation				
Acquisition of stock				
Acquisition of assets				

3. What is your company's industrial classification code?

4. What were your company's total assets before each transaction? (Unit: New Taiwan Dollars)

Transaction	A	B	C	D
Total assets				

What were your company's total assets after each transaction? (Unit: New Taiwan Dollars)

Transaction	A	B	C	D
Total assets				

When did the transaction come into force? (Day, Month, Year)

Transaction	A	B	C	D
Date				

5. What is the industrial classification code of the company you acquired?

	Industrial classification code
1st transaction A	
2nd transaction B	
3rd transaction C	
4th transaction D	

What were the total assets of the company you acquired prior to the transaction? (Unit: New Taiwan Dollars)

Transaction	A	B	C	D
Total assets				

Did the company you acquired belong to the same business group as your own firm?

	Yes	No
Transaction A		
Transaction B		
Transaction C		
Transaction D		

6. In what way, if any, did the activities of the company you acquired relate to your own company's main business? (Please tick the appropriate column)

Transaction	A	B	C	D
The same kind of business activity (i e. a horizontal transaction)				
A different stage of your own production operations (i.e. a vertical transaction)				
The same general industry, but no prior customer or supplier relationship existed (i.e. a congeneric transaction)				
Engaged in unrelated types of business activity (i.e. a conglomerate transaction)				

7. Please indicate the importance of each of the following in shaping your decision to pursue the acquisition(s) by placing a letter (A, B, C, D, etc.) in the appropriate column to indicate your motives for transaction A, transaction B, etc.

Motive or Reason	Very important	Fairly important	important	Slightly important	Not at all important
Economies of scale					
Control of distribution channels					
Administrative expense reduction					
Acquiring know-how or research and development					
Acquiring brand marks, patents or copyright technologies					
Enhancing market competitiveness					
Gaining rapid entry into new markets or industries					
Control of material resources					
Combining complementary resources					
Resolving financial difficulties					
Increasing corporate debt capacity or financing					
Risk diversification					
Increased market power					

Applying for a listing on the stock market					
Tax considerations					
Government encouragement or support					
Exploiting surplus funds					
Buying below replacement cost					
Gaining potential real estate or other related values					
Improving management efficiency generally					
Improving marketing management efficiency					
Improving production management efficiency					
Improving finance management efficiency					
Improving personnel management efficiency					
Improving purchasing management efficiency					
Improving R&D management efficiency					

Other Motives (please specify):

8. What was the main method your company chose to pay for the transaction? (Please tick the appropriate column)

Transaction	A	B	C	D
Cash (reserves)				
Cash (bank borrowing)				
Common stock				
Corporate bonds				
Preferred stock				
Convertible bonds				
Subscription warrants				

Other (please specify):

9. How did your company estimate the value of the firm you were targeting? (Please tick the appropriate column)

Transaction	A	B	C	D
Book value				
Stock market value				
Replacement cost value				
Cash flow value				

Other (please specify):

10. Compare the financial performance of your company with that of the firm you acquired, prior to the transaction. (Please label each separate transaction as "A", "B", "C" etc., and mark the appropriate column for each)

	Your enterprise very superior to transacted company	Your enterprise superior to transacted company	Your enterprise comparable with transacted company	Your enterprise inferior to transacted company	Your enterprise very inferior to transacted company
	1	2	3	4	5
Net sales					
Gross profits					
Operating income					
Net income					
Earnings per share					
Dividends per share					
Price/Earning ratio					
Return on total assets					

11. Was the transaction friendly or hostile? (Please tick the appropriate column)

Transaction	A	B	C	D
Friendly (A merger whose terms are approved by the management of both companies.)				
Hostile (A merger in which the target firm's management resist acquisition.)				

12. If you met with any difficulties during the transaction process, how serious were they? (Please mark "A", "B", "C" etc. in the appropriate column, for each of the transactions your company embarked on)

	Very serious	Fairly serious	Serious	Slightly serious	Not at all serious
	1	2	3	4	5
Asset valuation					
Goodwill valuation					
Contingent loss					
Customer drain					
Manager or employee drain					
Personnel arrangements					
Shareholders against bidding					
Corporate culture differences					
Litigation					
Raising finance					
Government regulations					

Other (please specify):

13. How serious were the following been in terms of their effect on your company's performance following the transaction? (Please mark "A", "B", "C" etc. in the appropriate column, for each of the transactions your company embarked on)

	Very serious	Fairly serious	Serious	Slightly serious	Not at all serious
	1	2	3	4	5
Customer drain					
Manager or employee drain					
Personnel arrangements					
Shareholders resistant					
Companies integrated with difficulty					
Litigation					
Raising finance					
Government regulations					
Control over the enlarged company					

Other (please specify it):

14. How would you rate the management efficiency of your company after the transaction as compared with before? (Please label each separate transaction as "A", "B", "C" etc., and mark the appropriate column for each)

	Very superior	Superior	Fair	Inferior	Very inferior
	1	2	3	4	5
Finance					
Marketing					
Production					
Personnel					
Purchasing					
Research & Development					

Other (please specify):

15. How would you rate the post-transaction performance of your company as a whole, compared with its performance before the transaction? (Please label each separate transaction as "A", "B", "C" etc., and mark the appropriate column for each)

	Very superior	Superior	Fair	Inferior	Very inferior
	1	2	3	4	5
Net sales					
Gross profits					
Operating income					

Net income					
Earnings per share					
Dividends per share					
Price/Earning ratio					
Return on total assets					

16. Would you be willing to be interviewed about the transactions which your company has been involved in?
Yes( ) No( )

17. What is your general opinion of mergers and acquisitions in Taiwan? Please specify.

Thank you very much!

Appendix 2

T-test and Mann-Whitney U - Wilcoxon Rank Sum W Test for Acquiring Enterprise's Merger Motives by Four Groups of Total Assets

Motives or Reasons	The Two-Independent-Samples T or U Test	T-value	2-Tail Sig.	Z-value	2-Tail Sig.
Economies of scale	X_1-X_2	-.67	.507	-.812	.416
	X_1-X_3	1.33	.185	-1.166	.243
	X_1-X_4	.47	.636	-.462	.644
	X_2-X_3	1.79	.077	-1.815	.069
	X_2-X_4	1.03	.305	-1.141	.253
	X_3-X_4	-.75	.454	-.634	.525
Control of distribution channels	X_1-X_2	-.99	.323	-1.188	.234
	X_1-X_3	-1.06	.293	-.977	.328
	X_1-X_4	-.62	.533	-.623	.532
	X_2-X_3	.07	.944	-.025	.979
	X_2-X_4	.37	.715	-.472	.636
	X_3-X_4	.35	.730	-.298	.765
Reducing administrative expense	X_1-X_2	.01	.993	-.628	.530
	X_1-X_3	-.14	.886	-1.269	.204
	X_1-X_4	.16	.872	-.383	.701
	X_2-X_3	-.14	.890	-.495	.620
	X_2-X_4	.14	.891	-.247	.804
	X_3-X_4	.32	.753	-.804	.420
Acquiring know-how or research and development	X_1-X_2	-1.10	.275	-.811	.417
	X_1-X_3	-.84	.403	-.552	.580
	X_1-X_4	-.84	.405	-.639	.522
	X_2-X_3	.35	.724	-.358	.719
	X_2-X_4	.28	.782	-.189	.850
	X_3-X_4	-.07	.947	-.158	.873
Acquiring brand marks, patents or copyright technologies	X_1-X_2	-.40	.687	-.033	.973
	X_1-X_3	-.70	.484	-.535	.592
	X_1-X_4	-1.51	.133	-.911	.361
	X_2-X_3	-.21	.834	-.404	.686
	X_2-X_4	-.88	.383	-.756	.449
	X_3-X_4	-.70	.484	-.355	.722
Enhancing market competitiveness	X_1-X_2	-1.90	.062	-2.093	.036
	X_1-X_3	-.25	.804	-.687	.491
	X_1-X_4	-.34	.735	-.635	.524
	X_2-X_3	1.63	.107	-1.691	.090
	X_2-X_4	1.47	.146	-1.632	.102
	X_3-X_4	-.10	.918	-.051	.959
Gaining rapid entry into new	X_1-X_2	-1.22	.226	-.733	.463
	X_1-X_3	.18	.858	-.426	.670

markets or industries	X_1-X_4	-.58	.561	-.224	.822
	X_2-X_3	1.32	.190	-1.194	.232
	X_2-X_4	.56	.574	-.313	.753
	X_3-X_4	-.75	.453	-.869	.384
Controlling of material resources	X_1-X_2	-.27	.788	-.108	.913
	X_1-X_3	-.59	.556	-.202	.839
	X_1-X_4	-1.91	.058	-1.181	.237
	X_2-X_3	-.22	.823	-.148	.882
	X_2-X_4	-1.33	.190	-1.084	.278
	X_3-X_4	-1.32	.191	-1.201	.229
Combining complementary resources	X_1-X_2	.82	.416	-.029	.976
	X_1-X_3	.30	.765	-.716	.473
	X_1-X_4	-.27	.789	-.910	.362
	X_2-X_3	-.60	.550	-.993	.320
	X_2-X_4	-1.02	.310	-.989	.322
	X_3-X_4	-.58	.563	-.194	.846
Resolving financial difficulties	X_1-X_2	-.02	.987	-.077	.938
	X_1-X_3	-2.26	.025	-1.850	.064
	X_1-X_4	-2.34	.021	-2.035	.041
	X_2-X_3	-1.82	.073	-1.638	.101
	X_2-X_4	-1.95	.054	-1.796	.072
	X_3-X_4	-.14	.886	-.234	.814
Increasing corporate debt capacity or financing	X_1-X_2	-.88	.382	-.855	.386
	X_1-X_3	-1.33	.187	-1.118	.263
	X_1-X_4	-2.64	.009	-2.095	.036
	X_2-X_3	-.19	.853	-.136	.891
	X_2-X_4	-1.36	.177	-1.192	.233
	X_3-X_4	-1.39	.167	-1.424	.154
Risk diversification	X_1-X_2	-.48	.633	-.264	.791
	X_1-X_3	-.81	.419	-.363	.716
	X_1-X_4	-.50	.621	-.317	.750
	X_2-X_3	-.24	.812	-.212	.832
	X_2-X_4	-.01	.992	-.189	.849
	X_3-X_4	.23	.817	-.075	.940
Increased market power	X_1-X_2	-1.64	.103	-1.649	.099
	X_1-X_3	-.03	.977	-.066	.947
	X_1-X_4	-.13	.897	-.142	.886
	X_2-X_3	1.55	.124	-1.538	.123
	X_2-X_4	1.40	.164	-1.397	.162
	X_3-X_4	-.10	.923	-.065	.947
Applying for a listing on the stock market	X_1-X_2	1.31	.196	-.973	.330
	X_1-X_3	3.71	.000	-3.643	.000
	X_1-X_4	2.45	.016	-2.298	.021
	X_2-X_3	1.39	.168	-1.689	.091
	X_2-X_4	.65	.519	-.672	.501
	X_3-X_4	-.80	.426	-.919	.358

Tax considerations	X_1-X_2	.88	.379	-.950	.341
	X_1-X_3	.49	.628	-.605	.545
	X_1-X_4	-.35	.726	-.232	.816
	X_2-X_3	-.49	.628	-.444	.656
	X_2-X_4	-1.16	.251	-1.135	.256
	X_3-X_4	-.82	.416	-.858	.390
Government encouragement or support	X_1-X_2	-.59	.554	-.437	.661
	X_1-X_3	.54	.588	-.721	.470
	X_1-X_4	-.09	.925	-.005	.995
	X_2-X_3	1.08	.281	-1.172	.241
	X_2-X_4	.49	.627	-.427	.668
	X_3-X_4	-.60	.548	-.748	.453
Exploiting surplus funds	X_1-X_2	.57	.573	-.493	.621
	X_1-X_3	.34	.737	-.730	.465
	X_1-X_4	.01	.990	-.217	.827
	X_2-X_3	-.30	.761	-.247	.804
	X_2-X_4	-.53	.594	-.402	.687
	X_3-X_4	-.30	.765	-.532	.594
Buying below replacement cost	X_1-X_2	-.55	.583	-.775	.438
	X_1-X_3	-.24	.807	-.148	.881
	X_1-X_4	-.72	.470	-.469	.638
	X_2-X_3	.36	.718	-.927	.353
	X_2-X_4	-.06	.951	-.668	.503
	X_3-X_4	-.53	.596	-.995	.319
Gaining potential real estate or other related values	X_1-X_2	1.09	.277	-1.115	.264
	X_1-X_3	.69	.489	-.850	.395
	X_1-X_4	-.04	.969	-.284	.776
	X_2-X_3	-.50	.618	-.442	.658
	X_2-X_4	-1.14	.258	-1.016	.309
	X_3-X_4	-.72	.473	-.647	.517
Improving management efficiency generally	X_1-X_2	-1.01	.313	-1.046	.295
	X_1-X_3	-.88	.381	-1.012	.311
	X_1-X_4	-2.59	.011	-2.650	.008
	X_2-X_3	.25	.805	-.216	.828
	X_2-X_4	-1.16	.249	-1.196	.231
	X_3-X_4	-1.62	.109	-1.674	.094
Improving marketing management efficiency	X_1-X_2	-1.49	.140	-1.644	.100
	X_1-X_3	-1.18	.241	-1.624	.104
	X_1-X_4	-2.37	.019	-2.534	.011
	X_2-X_3	.51	.614	-.573	.566
	X_2-X_4	-.59	.556	-.524	.599
	X_3-X_4	-1.25	.215	-1.214	.224
Improving production management efficiency	X_1-X_2	-.27	.787	-.330	.740
	X_1-X_3	.37	.709	-.190	.849
	X_1-X_4	-1.59	.115	-1.358	.174
	X_2-X_3	.61	.544	-.590	.555

	X_2-X_4	-1.13	.263	-1.070	.284
	X_3-X_4	-1.99	.050	-1.896	.057
Improving finance management efficiency	X_1-X_2	-1.22	.225	-1.367	.171
	X_1-X_3	-.16	.874	-.490	.623
	X_1-X_4	-1.63	.106	-1.725	.084
	X_2-X_3	1.10	.275	-1.015	.310
	X_2-X_4	-.23	.823	-.152	.878
	X_3-X_4	-1.46	.148	-1.287	.197
Improving personnel management efficiency	X_1-X_2	-.90	.370	-1.038	.299
	X_1-X_3	-.29	.772	-.544	.586
	X_1-X_4	-1.19	.236	-1.222	.221
	X_2-X_3	.66	.511	-.647	.517
	X_2-X_4	-.15	.880	-.041	.967
	X_3-X_4	-.90	.370	-.761	.446
Improving purchasing management efficiency	X_1-X_2	-1.16	.247	-1.271	.203
	X_1-X_3	-.24	.812	-.400	.688
	X_1-X_4	-1.64	.103	-1.528	.126
	X_2-X_3	1.02	.310	-1.055	.291
	X_2-X_4	-.30	.762	-.262	.793
	X_3-X_4	-1.45	.149	-1.407	.159
Improving R&D management efficiency	X_1-X_2	-2.33	.022	-1.820	.068
	X_1-X_3	-.35	.727	-.442	.658
	X_1-X_4	-1.47	.144	-1.245	.212
	X_2-X_3	1.96	.053	-1.930	.053
	X_2-X_4	.79	.429	-.575	.565
	X_3-X_4	-1.18	.242	-1.139	.254

$H_0 : X_{md} = X_{me}$

$H_1 : X_{md} \neq X_{me}$

where X_{md} = mean value of rating scale score, motive m, group d

X_{me} = mean value of rating scale score, motive m, group e

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Mann-Whitney U - Wilcoxon Rank Sum W Test for Independent Acquiring Enterprise's Merger Motives by Business Group

Motive	Z-value	2-Tailed P.
Economies of scale	-.869	.384
Control of distribution channels	-1.310	.190
Reducing administrative expense	-2.605	.009
Acquiring know-how or research and development	-.408	.683
Acquiring brand marks, patents or copyright technologies	-.091	.927
Enhancing market competitiveness	-.915	.359
Gaining rapid entry into new markets or industries	-1.279	.200
Controlling of material resources	-.210	.833
Combining complementary resources	-2.646	.008
Resolving financial difficulties	-1.403	.160
Increasing corporate debt capacity or financing	-1.322	.186
Risk diversification	-.473	.635
Increased market power	-2.715	.006
Applying for a listing on the stock market	-1.645	.099
Tax considerations	-2.798	.005
Government encouragement or support	-.767	.443
Exploiting surplus funds	-2.453	.014
Buying below replacement cost	-1.459	.144
Gaining potential real estate or other related values	-.105	.916
Improving management efficiency generally	-2.994	.002
Improving marketing management efficiency	-2.828	.004
Improving production management efficiency	-2.450	.014
Improving finance management efficiency	-2.499	.012
Improving personnel management efficiency	-2.272	.023
Improving purchasing management efficiency	-2.260	.023
Improving R&D management efficiency	-1.343	.179

$H_0 : \mu_{my} = \mu_{mn}$

$H_1 : \mu_{my} \neq \mu_{mn}$

where μ_{my} = median value of rating scale score, motive m, same business group

μ_{mn} = median value of rating scale score, motive m, different business group

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 4

Mann-Whitney U - Wilcoxon Rank Sum W Test for Independent Acquiring Enterprise's Merger Motives by Type of Transaction

Motive	Type of transaction	Z-value	2-Tailed P.
Economies of scale	Horizontal-Vertical	-.937	.348
	Horizontal-Congeneric	-1.354	.175
	Horizontal-Conglomerate	-3.671	.000
	Vertical-Congeneric	-.411	.680
	Vertical-Conglomerate	-2.234	.025
	Congeneric-Conglomerate	-1.714	.086
Control of distribution channels	Horizontal-Vertical	-.820	.412
	Horizontal-Congeneric	-.952	.340
	Horizontal-Conglomerate	-3.742	.000
	Vertical-Congeneric	-.185	.852
	Vertical-Conglomerate	-2.173	.029
	Congeneric-Conglomerate	-1.840	.065
Reducing administrative expense	Horizontal-Vertical	-.742	.457
	Horizontal-Congeneric	-1.015	.309
	Horizontal-Conglomerate	-2.260	.023
	Vertical-Congeneric	-1.158	.246
	Vertical-Conglomerate	-1.152	.249
	Congeneric-Conglomerate	-1.972	.048
Acquiring know-how or research and development	Horizontal-Vertical	-1.135	.256
	Horizontal-Congeneric	-.735	.462
	Horizontal-Conglomerate	-1.604	.108
	Vertical-Congeneric	-.295	.767
	Vertical-Conglomerate	-1.828	.067
	Congeneric-Conglomerate	-1.503	.132
Acquiring brand marks, patents or copyright technologies	Horizontal-Vertical	-1.021	.307
	Horizontal-Congeneric	-1.210	.226
	Horizontal-Conglomerate	-1.711	.087
	Vertical-Congeneric	-.375	.707
	Vertical-Conglomerate	-2.020	.043
	Congeneric-Conglomerate	-2.140	.032
Enhancing market competitiveness	Horizontal-Vertical	-.966	.333
	Horizontal-Congeneric	-.624	.532
	Horizontal-Conglomerate	-4.531	.000
	Vertical-Congeneric	-1.192	.233
	Vertical-Conglomerate	-4.055	.000
	Congeneric-Conglomerate	-2.497	.012
Gaining rapid entry into new markets or industries	Horizontal-Vertical	-1.052	.292
	Horizontal-Congeneric	-.120	.904
	Horizontal-Conglomerate	-.855	.392
	Vertical-Congeneric	-.684	.493

	Vertical-Conglomerate	-1.326	.184
	Congeneric-Conglomerate	-.752	.451
Controlling of material resources	Horizontal-Vertical	-.905	.365
	Horizontal-Congeneric	-.225	.821
	Horizontal-Conglomerate	-1.403	.160
	Vertical-Congeneric	-.839	.400
	Vertical-Conglomerate	-1.704	.088
	Congeneric-Conglomerate	-.829	.407
Combining complementary resources	Horizontal-Vertical	-1.249	.211
	Horizontal-Congeneric	-1.062	.288
	Horizontal-Conglomerate	-.505	.613
	Vertical-Congeneric	-.113	.909
	Vertical-Conglomerate	-1.405	.159
	Congeneric-Conglomerate	-1.234	.217
Resolving financial difficulties	Horizontal-Vertical	-.230	.817
	Horizontal-Congeneric	-.842	.399
	Horizontal-Conglomerate	-.949	.342
	Vertical-Congeneric	-.501	.616
	Vertical-Conglomerate	-.929	.352
	Congeneric-Conglomerate	-1.269	.204
Increasing corporate debt capacity or financing	Horizontal-Vertical	-1.210	.226
	Horizontal-Congeneric	-1.641	.100
	Horizontal-Conglomerate	-1.695	.089
	Vertical-Congeneric	-2.306	.021
	Vertical-Conglomerate	-2.267	.023
	Congeneric-Conglomerate	-.089	.928
Risk diversification	Horizontal-Vertical	-.131	.895
	Horizontal-Congeneric	-1.523	.127
	Horizontal-Conglomerate	-1.388	.165
	Vertical-Congeneric	-1.423	.154
	Vertical-Conglomerate	-1.098	.271
	Congeneric-Conglomerate	-2.023	.043
Increased market power	Horizontal-Vertical	-.542	.587
	Horizontal-Congeneric	-.968	.332
	Horizontal-Conglomerate	-4.744	.000
	Vertical-Congeneric	-.434	.664
	Vertical-Conglomerate	-3.375	.000
	Congeneric-Conglomerate	-2.481	.013
Applying for a listing on the stock market	Horizontal-Vertical	-1.908	.056
	Horizontal-Congeneric	-.948	.342
	Horizontal-Conglomerate	-.985	.324
	Vertical-Congeneric	-.537	.591
	Vertical-Conglomerate	-2.297	.021
	Congeneric-Conglomerate	-1.468	.142
Tax considerations	Horizontal-Vertical	-3.584	.000
	Horizontal-Congeneric	-1.096	.272

	Horizontal-Conglomerate	-.425	.670
	Vertical-Congeneric	-1.605	.108
	Vertical-Conglomerate	-2.273	.023
	Congeneric-Conglomerate	-.585	.558
Government encouragement or support	Horizontal-Vertical	-2.132	.033
	Horizontal-Congeneric	-1.282	.199
	Horizontal-Conglomerate	-.928	.353
	Vertical-Congeneric	-.563	.573
	Vertical-Conglomerate	-1.783	.074
	Congeneric-Conglomerate	-1.388	.165
Exploiting surplus funds	Horizontal-Vertical	-.554	.579
	Horizontal-Congeneric	-.040	.967
	Horizontal-Conglomerate	-1.041	.297
	Vertical-Congeneric	-.367	.713
	Vertical-Conglomerate	-.486	.626
	Congeneric-Conglomerate	-.781	.434
Buying below replacement cost	Horizontal-Vertical	-.602	.547
	Horizontal-Congeneric	-.196	.844
	Horizontal-Conglomerate	-.582	.560
	Vertical-Congeneric	-.682	.495
	Vertical-Conglomerate	-.951	.341
	Congeneric-Conglomerate	-.332	.739
Gaining potential real estate or other related values	Horizontal-Vertical	-.200	.841
	Horizontal-Congeneric	-.921	.357
	Horizontal-Conglomerate	-.851	.394
	Vertical-Congeneric	-.738	.460
	Vertical-Conglomerate	-.936	.349
	Congeneric-Conglomerate	-1.381	.167
Improving management efficiency generally	Horizontal-Vertical	-.177	.859
	Horizontal-Congeneric	-.735	.462
	Horizontal-Conglomerate	-1.949	.051
	Vertical-Congeneric	-.710	.477
	Vertical-Conglomerate	-1.542	.122
	Congeneric-Conglomerate	-.806	.419
Improving marketing management efficiency	Horizontal-Vertical	-.073	.941
	Horizontal-Congeneric	-1.507	.131
	Horizontal-Conglomerate	-2.543	.011
	Vertical-Congeneric	-1.294	.195
	Vertical-Conglomerate	-1.956	.050
	Congeneric-Conglomerate	-.736	.461
Improving production management efficiency	Horizontal-Vertical	-.196	.844
	Horizontal-Congeneric	-.554	.579
	Horizontal-Conglomerate	-1.646	.099
	Vertical-Congeneric	-.632	.527
	Vertical-Conglomerate	-1.350	.176
	Congeneric-Conglomerate	-.675	.499

Improving finance management efficiency	Horizontal-Vertical	-.037	.970
	Horizontal-Congeneric	-.099	.920
	Horizontal-Conglomerate	-1.166	.243
	Vertical-Congeneric	-.078	.937
	Vertical-Conglomerate	-.830	.406
	Congeneric-Conglomerate	-.806	.419
Improving personnel management efficiency	Horizontal-Vertical	-.516	.605
	Horizontal-Congeneric	-1.057	.290
	Horizontal-Conglomerate	-1.873	.061
	Vertical-Congeneric	-.489	.624
	Vertical-Conglomerate	-1.140	.253
	Congeneric-Conglomerate	-.598	.549
Improving purchasing management efficiency	Horizontal-Vertical	-.358	.720
	Horizontal-Congeneric	-.171	.863
	Horizontal-Conglomerate	-3.177	.001
	Vertical-Congeneric	-.419	.675
	Vertical-Conglomerate	-2.650	.008
	Congeneric-Conglomerate	-2.027	.042
Improving R&D management efficiency	Horizontal-Vertical	-1.187	.235
	Horizontal-Congeneric	-.016	.986
	Horizontal-Conglomerate	-2.336	.019
	Vertical-Congeneric	-.873	.382
	Vertical-Conglomerate	-2.599	.009
	Congeneric-Conglomerate	-1.545	.122

$H_0 : \mu_{md} = \mu_{me}$

$H_1 : \mu_{md} \neq \mu_{me}$

where μ_{md} = mean value of rating scale score, motive m, type d

μ_{me} = mean value of rating scale score, motive m, type e

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 5

The Spearman's Rank Correlation Between the Motives for Mergers and Acquisitions and the Total Assets Before Each Transaction of Acquiring Enterprises

Motive	Correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	-.0735	.281	217
Control of distribution channels	.0403	.555	217
Reducing administrative expense	.0526	.441	217
Acquiring know-how or research and development	.0211	.757	217
Acquiring brand marks, patents or copyright technologies	.0491	.474	215
Enhancing market competitiveness	.0284	.678	215
Gaining rapid entry into new markets or industries	.0079	.908	215
Controlling of material resources	.0542	.430	214
Combining complementary resources	.0823	.227	217
Resolving financial difficulties	.1666	.014	217
Increasing corporate debt capacity or financing	.1394	.040	217
Risk diversification	.0086	.900	215
Increased market power	-.0178	.795	217
Applying for a listing on the stock market	-.2107	.002	217
Tax considerations	.0011	.987	217
Government encouragement or support	-.0314	.645	217
Exploiting surplus funds	-.0123	.858	217
Buying below replacement cost	.0021	.976	217
Gaining potential real estate or other related values	-.0062	.927	217
Improving management efficiency generally	.1751	.016	188
Improving marketing management efficiency	.1592	.019	217
Improving production management efficiency	.0559	.414	216
Improving finance management efficiency	.0800	.240	217
Improving personnel management efficiency	.0708	.299	217
Improving purchasing management efficiency	.1021	.134	217
Improving R&D management efficiency	.0667	.329	216

$H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between the rank of the merger motives and total assets before each transaction of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 6

The Spearman's Rank Correlation between the Motives for Mergers and Acquisitions and the Change in Assets After Mergers and Acquisitions

Motive	Correlation Coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	-.1905	.007	198
Control of distribution channels	-.0304	.671	198
Reducing administrative expense	-.1426	.045	198
Acquiring know-how or research and development	-.0411	.566	198
Acquiring brand marks, patents or copyright technologies	.0296	.680	196
Enhancing market competitiveness	-.0295	.681	196
Gaining rapid entry into new markets or industries	.0820	.253	196
Controlling of material resources	.0630	.382	195
Combining complementary resources	-.0126	.860	198
Resolving financial difficulties	.0624	.382	198
Increasing corporate debt capacity or financing	.0863	.227	198
Risk diversification	.0359	.617	196
Increased market power	-.1218	.087	198
Applying for a listing on the stock market	-.2250	.001	198
Tax considerations	-.0709	.321	198
Government encouragement or support	-.1126	.114	198
Exploiting surplus funds	.0088	.902	198
Buying below replacement cost	-.0017	.981	198
Gaining potential real estate or other related values	.0435	.543	198
Improving management efficiency generally	.0176	.818	173
Improving marketing management efficiency	.0349	.625	198
Improving production management efficiency	-.0937	.190	197
Improving finance management efficiency	-.0617	.388	198
Improving personnel management efficiency	-.0328	.646	198
Improving purchasing management efficiency	-.0137	.848	198
Improving R&D management efficiency	-.0622	.386	197

P = Probability of type I error of the null hypothesis H_0 against H_1

$H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and the change in assets after mergers and acquisitions of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-1 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Net Sales** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.267	.000	.282	.000	236
Control of distribution channels	.212	.001	.232	.000	236
Reducing administrative expense	.157	.015	.135	.038	236
Acquiring know-how or research and development	.156	.016	.171	.008	236
Acquiring brand marks, patents or copyright technologies	.116	.076	.125	.054	234
Enhancing market competitiveness	.229	.000	.218	.001	234
Gaining rapid entry into new markets or industries	.219	.001	.208	.001	234
Controlling of material resources	.128	.050	.131	.045	233
Combining complementary resources	.055	.398	.082	.207	236
Resolving financial difficulties	.095	.144	.104	.109	236
Increasing corporate debt capacity or financing	.158	.015	.175	.007	236
Risk diversification	.065	.316	.099	.130	234
Increased market power	.278	.000	.321	.000	236
Applying for a listing on the stock market	.119	.068	.123	.059	236
Tax considerations	.135	.038	.145	.026	236
Government encouragement or support	.135	.038	.145	.026	236
Exploiting surplus funds	.012	.845	.041	.528	236
Buying below replacement cost	.052	.424	.097	.135	236
Gaining potential real estate or other related values	-.048	.463	-.025	.700	236
Improving management efficiency generally	.000	.994	.031	.649	207
Improving marketing management efficiency	.070	.278	.087	.179	236
Improving production management efficiency	.097	.136	.122	.061	235
Improving finance management efficiency	.048	.463	.071	.274	236
Improving personnel management efficiency	.117	.071	.108	.098	236
Improving purchasing management efficiency	.150	.021	.166	.010	236
Improving R&D management efficiency	.150	.021	.151	.020	235

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction net sales 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in net sales of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-2 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Gross profits** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.244	.000	.283	.000	235
Control of distribution channels	.231	.000	.263	.000	235
Reducing administrative expense	.164	.012	.160	.014	235
Acquiring know-how or research and development	.129	.047	.154	.018	235
Acquiring brand marks, patents or copyright technologies	.051	.430	.099	.130	233
Enhancing market competitiveness	.203	.002	.195	.003	233
Gaining rapid entry into new markets or industries	.180	.006	.185	.004	233
Controlling of material resources	.040	.537	.051	.437	232
Combining complementary resources	-.024	.714	.001	.984	235
Resolving financial difficulties	.083	.203	.088	.176	235
Increasing corporate debt capacity or financing	.055	.399	.077	.236	235
Risk diversification	.074	.255	.097	.140	233
Increased market power	.229	.000	.294	.000	235
Applying for a listing on the stock market	.109	.093	.141	.030	235
Tax considerations	.073	.263	.086	.188	235
Government encouragement or support	.084	.198	.108	.097	235
Exploiting surplus funds	.051	.431	.073	.261	235
Buying below replacement cost	.080	.221	.113	.082	235
Gaining potential real estate or other related values	-.047	.471	-.022	.731	235
Improving management efficiency generally	-.009	.896	.034	.622	206
Improving marketing management efficiency	.087	.179	.117	.072	235
Improving production management efficiency	.125	.055	.154	.018	234
Improving finance management efficiency	.002	.966	.045	.484	235
Improving personnel management efficiency	.072	.270	.079	.222	235
Improving purchasing management efficiency	.109	.095	.136	.036	235
Improving R&D management efficiency	.079	.227	.091	.164	234

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction gross profits 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in gross profits of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-3 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Operating Income** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.276	.000	.332	.000	233
Control of distribution channels	.232	.000	.269	.000	233
Reducing administrative expense	.149	.023	.153	.019	233
Acquiring know-how or research and development	.151	.021	.179	.006	233
Acquiring brand marks, patents or copyright technologies	.044	.504	.088	.181	231
Enhancing market competitiveness	.205	.002	.225	.001	231
Gaining rapid entry into new markets or industries	.163	.013	.175	.007	231
Controlling of material resources	.052	.425	.068	.302	230
Combining complementary resources	.003	.953	.032	.620	233
Resolving financial difficulties	.109	.095	.116	.075	233
Increasing corporate debt capacity or financing	.081	.215	.108	.099	233
Risk diversification	.106	.106	.116	.076	231
Increased market power	.210	.001	.274	.000	233
Applying for a listing on the stock market	.117	.073	.135	.038	233
Tax considerations	.101	.122	.113	.085	233
Government encouragement or support	.124	.058	.155	.017	233
Exploiting surplus funds	.076	.244	.081	.217	233
Buying below replacement cost	.106	.106	.120	.066	233
Gaining potential real estate or other related values	-.016	.801	-.002	.967	233
Improving management efficiency generally	.026	.706	.054	.438	204
Improving marketing management efficiency	.105	.107	.128	.051	233
Improving production management efficiency	.160	.015	.181	.006	232
Improving finance management efficiency	.047	.470	.087	.184	233
Improving personnel management efficiency	.061	.349	.084	.199	233
Improving purchasing management efficiency	.122	.062	.149	.023	233
Improving R&D management efficiency	.093	.154	.116	.076	232

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction operating income 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in operating income of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-4 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Net Income** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.248	.000	.306	.000	232
Control of distribution channels	.196	.003	.232	.000	232
Reducing administrative expense	.144	.027	.141	.032	232
Acquiring know-how or research and development	.129	.049	.157	.017	232
Acquiring brand marks, patents or copyright technologies	.033	.616	.079	.228	230
Enhancing market competitiveness	.166	.011	.174	.008	230
Gaining rapid entry into new markets or industries	.130	.049	.143	.030	230
Controlling of material resources	.021	.752	.041	.530	229
Combining complementary resources	-.033	.610	-.010	.872	232
Resolving financial difficulties	.065	.318	.078	.232	232
Increasing corporate debt capacity or financing	.015	.816	.037	.575	232
Risk diversification	.098	.138	.109	.097	230
Increased market power	.171	.009	.227	.000	232
Applying for a listing on the stock market	.099	.131	.114	.082	232
Tax considerations	.064	.329	.075	.255	232
Government encouragement or support	.090	.169	.125	.055	232
Exploiting surplus funds	.038	.563	.048	.460	232
Buying below replacement cost	.069	.291	.086	.191	232
Gaining potential real estate or other related values	-.038	.555	-.027	.673	232
Improving management efficiency generally	.025	.716	.057	.419	203
Improving marketing management efficiency	.103	.117	.125	.056	232
Improving production management efficiency	.168	.010	.192	.003	231
Improving finance management efficiency	.015	.814	.052	.426	232
Improving personnel management efficiency	.050	.445	.076	.247	232
Improving purchasing management efficiency	.121	.065	.150	.022	232
Improving R&D management efficiency	.088	.178	.111	.092	231

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction net income 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in net income of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-5 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Earnings per Share** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.256	.000	.304	.000	228
Control of distribution channels	.243	.000	.278	.000	228
Reducing administrative expense	.177	.007	.162	.014	228
Acquiring know-how or research and development	.150	.023	.180	.006	228
Acquiring brand marks, patents or copyright technologies	.068	.303	.132	.047	226
Enhancing market competitiveness	.164	.013	.172	.010	226
Gaining rapid entry into new markets or industries	.188	.004	.212	.001	226
Controlling of material resources	.041	.533	.069	.299	225
Combining complementary resources	-.004	.947	.025	.705	228
Resolving financial difficulties	.044	.500	.054	.414	228
Increasing corporate debt capacity or financing	.015	.859	.033	.614	228
Risk diversification	.091	.172	.115	.083	228
Increased market power	.181	.006	.244	.000	228
Applying for a listing on the stock market	.107	.104	.132	.045	228
Tax considerations	.047	.472	.066	.317	228
Government encouragement or support	.033	.615	.066	.318	228
Exploiting surplus funds	.068	.306	.090	.175	228
Buying below replacement cost	.068	.303	.104	.115	228
Gaining potential real estate or other related values	.031	.633	.047	.471	228
Improving management efficiency generally	.016	.821	.050	.483	199
Improving marketing management efficiency	.122	.065	.154	.019	228
Improving production management efficiency	.161	.015	.192	.004	227
Improving finance management efficiency	.048	.464	.080	.227	228
Improving personnel management efficiency	.092	.162	.114	.084	228
Improving purchasing management efficiency	.149	.024	.190	.004	228
Improving R&D management efficiency	.137	.039	.168	.011	227

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction earnings per share 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in earnings per share of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-6 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Dividends per Share** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.223	.001	.270	.000	227
Control of distribution channels	.214	.001	.249	.000	227
Reducing administrative expense	.177	.007	.179	.007	227
Acquiring know-how or research and development	.127	.055	.149	.024	227
Acquiring brand marks, patents or copyright technologies	.051	.440	.109	.100	225
Enhancing market competitiveness	.135	.042	.151	.023	225
Gaining rapid entry into new markets or industries	.187	.005	.209	.002	225
Controlling of material resources	.001	.987	.022	.734	224
Combining complementary resources	-.048	.472	-.009	.888	227
Resolving financial difficulties	.046	.485	.040	.541	227
Increasing corporate debt capacity or financing	.008	.896	.021	.747	227
Risk diversification	.106	.110	.118	.077	225
Increased market power	.172	.009	.239	.000	227
Applying for a listing on the stock market	.101	.128	.117	.077	227
Tax considerations	.026	.698	.035	.598	227
Government encouragement or support	.033	.619	.058	.382	227
Exploiting surplus funds	.071	.285	.087	.187	227
Buying below replacement cost	.104	.118	.128	.053	227
Gaining potential real estate or other related values	.048	.469	.062	.347	227
Improving management efficiency generally	.000	.999	.032	.647	198
Improving marketing management efficiency	.078	.238	.112	.090	227
Improving production management efficiency	.139	.036	.168	.011	226
Improving finance management efficiency	.015	.812	.049	.460	227
Improving personnel management efficiency	.054	.414	.081	.222	227
Improving purchasing management efficiency	.122	.064	.165	.013	227
Improving R&D management efficiency	.125	.060	.154	.020	226

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction dividends per share 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in dividends per share of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-7 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Price/Earning Ratio** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.275	.000	.314	.000	218
Control of distribution channels	.272	.000	.302	.000	218
Reducing administrative expense	.213	.001	.213	.002	218
Acquiring know-how or research and development	.165	.015	.194	.004	218
Acquiring brand marks, patents or copyright technologies	.104	.127	.174	.010	216
Enhancing market competitiveness	.175	.010	.191	.005	216
Gaining rapid entry into new markets or industries	.157	.021	.180	.008	216
Controlling of material resources	.054	.423	.093	.172	216
Combining complementary resources	-.000	.994	.017	.792	218
Resolving financial difficulties	.022	.740	.037	.585	218
Increasing corporate debt capacity or financing	-.010	.881	.018	.784	218
Risk diversification	.124	.068	.146	.031	216
Increased market power	.227	.001	.282	.000	218
Applying for a listing on the stock market	.194	.004	.202	.003	218
Tax considerations	.061	.370	.076	.261	218
Government encouragement or support	.069	.309	.107	.113	218
Exploiting surplus funds	.124	.067	.134	.048	218
Buying below replacement cost	.088	.193	.099	.144	218
Gaining potential real estate or other related values	.050	.460	.065	.337	218
Improving management efficiency generally	.054	.452	.072	.319	191
Improving marketing management efficiency	.148	.029	.165	.014	218
Improving production management efficiency	.147	.030	.165	.014	217
Improving finance management efficiency	.050	.459	.080	.237	218
Improving personnel management efficiency	.096	.155	.125	.065	218
Improving purchasing management efficiency	.162	.016	.196	.004	218
Improving R&D management efficiency	.139	.040	.173	.011	217

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction price/earning ratio 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in price/earning ratio of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-7-8 The Pearson Linear and Spearman's Rank Correlation between the Merger Motives* and the Post-Transaction Return on Total Assets** of Acquiring Enterprises

Motive or Reason	Pearson linear correlation coefficient	2-Tail Sig.	Spearman's rank correlation coefficient	2-Tail Sig.	Cases (No.)
Economies of scale	.254	.000	.302	.000	218
Control of distribution channels	.235	.000	.267	.000	218
Reducing administrative expense	.201	.003	.193	.004	218
Acquiring know-how or research and development	.111	.102	.146	.031	218
Acquiring brand marks, patents or copyright technologies	.083	.224	.143	.036	216
Enhancing market competitiveness	.107	.114	.138	.043	216
Gaining rapid entry into new markets or industries	.143	.035	.156	.022	216
Controlling of material resources	.028	.677	.052	.444	216
Combining complementary resources	.025	.710	.062	.359	218
Resolving financial difficulties	.071	.296	.084	.213	218
Increasing corporate debt capacity or financing	.003	.961	.029	.663	218
Risk diversification	.137	.044	.152	.025	216
Increased market power	.158	.020	.211	.002	218
Applying for a listing on the stock market	.146	.030	.154	.022	218
Tax considerations	.079	.245	.097	.151	218
Government encouragement or support	.100	.141	.137	.042	218
Exploiting surplus funds	.124	.067	.128	.059	218
Buying below replacement cost	.071	.296	.086	.204	218
Gaining potential real estate or other related values	.044	.516	.054	.423	218
Improving management efficiency generally	.110	.132	.136	.061	189
Improving marketing management efficiency	.172	.011	.197	.003	218
Improving production management efficiency	.193	.004	.221	.001	217
Improving finance management efficiency	.088	.193	.116	.085	218
Improving personnel management efficiency	.103	.128	.125	.065	218
Improving purchasing management efficiency	.187	.005	.221	.001	218
Improving R&D management efficiency	.136	.045	.172	.011	217

* Merger motives 1 very important, 2 fairly important, 3 important, 4 slightly important, 5 not at all important.

** Post-transaction return on total assets 1 very superior, 2 superior, 3 same, 4 inferior, 5 very inferior.

P = Probability of type I error of the null hypothesis H_0 against H_1

where $H_0 : \rho = 0$

$H_1 : \rho \neq 0$

where ρ lies between -1 and +1. $\rho > 0$ indicates a positive linear relationship and $\rho < 0$ indicates a negative linear relationship between merger motives and post-transaction performance in return on total assets of acquiring enterprises.

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-1 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Asset Valuation)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.502	.615	.07	.947	180
	Serious or very serious					54
Gross profits	Not at all or a little serious	-1.117	.263	-1.53	.131	179
	Serious or very serious					54
Operating income	Not at all or a little serious	-1.133	.257	-1.44	.153	177
	Serious or very serious					54
Net income	Not at all or a little serious	-1.287	.197	-1.69	.092	177
	Serious or very serious					53
Profit rate						
Earnings per share	Not at all or a little serious	-1.950	.051	-2.22	.030	177
	Serious or very serious					50
Dividends per share	Not at all or a little serious	-2.048	.040	-2.42	.018	176
	Serious or very serious					50
Price/Earning ratio	Not at all or a little serious	-.328	.742	-.91	.366	171
	Serious or very serious					46
Return on total assets	Not at all or a little serious	-1.509	.131	-1.78	.080	168
	Serious or very serious					49

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious asset valuation problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious asset valuation problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-2 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Goodwill Valuation)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.677	.498	-1.26	.209	202
	Serious or very serious					33
Gross profits	Not at all or a little serious	-.983	.325	-1.29	.204	201
	Serious or very serious					33
Operating income	Not at all or a little serious	-1.004	.315	-1.39	.167	199
	Serious or very serious					33
Net income	Not at all or a little serious	-.732	.464	-1.10	.273	198
	Serious or very serious					33
Profit rate						
Earnings per share	Not at all or a little serious	-1.377	.168	-1.85	.065	196
	Serious or very serious					32
Dividends per share	Not at all or a little serious	-1.491	.135	-2.08	.039	195
	Serious or very serious					32
Price/Earning ratio	Not at all or a little serious	-.088	.929	-.18	.853	191
	Serious or very serious					27
Return on total assets	Not at all or a little serious	-.920	.357	-1.17	.243	189
	Serious or very serious					29

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious goodwill valuation problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious goodwill valuation problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-3 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Contingent Loss)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.017	.985	-.51	.615	197
	Serious or very serious					38
Gross profits	Not at all or a little serious	-1.461	.143	-1.79	.080	196
	Serious or very serious					38
Operating income	Not at all or a little serious	-1.480	.138	-1.94	.054	194
	Serious or very serious					38
Net income	Not at all or a little serious	-1.853	.063	-2.23	.027	193
	Serious or very serious					38
Profit rate						
Earnings per share	Not at all or a little serious	-2.874	.004	-3.05	.004	192
	Serious or very serious					36
Dividends per share	Not at all or a little serious	-2.443	.014	-3.09	.002	191
	Serious or very serious					36
Price/Earning ratio	Not at all or a little serious	-1.258	.208	-1.78	.076	184
	Serious or very serious					34
Return on total assets	Not at all or a little serious	-2.124	.033	-2.51	.013	183
	Serious or very serious					35

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious contingent loss problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious contingent loss problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-4 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Customer Drain)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.480	.630	-.21	.838	215
	Serious or very serious					20
Gross profits	Not at all or a little serious	-1.093	.274	-1.21	.226	214
	Serious or very serious					20
Operating income	Not at all or a little serious	-1.074	.282	-1.23	.219	212
	Serious or very serious					20
Net income	Not at all or a little serious	-.800	.423	-.98	.329	212
	Serious or very serious					19
Profit rate						
Earnings per share	Not at all or a little serious	-1.280	.200	-1.31	.193	210
	Serious or very serious					18
Dividends per share	Not at all or a little serious	-1.147	.251	-1.29	.199	209
	Serious or very serious					18
Price/Earning ratio	Not at all or a little serious	-.722	.470	-.79	.433	201
	Serious or very serious					17
Return on total assets	Not at all or a little serious	-1.163	.244	-1.34	.180	201
	Serious or very serious					17

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious customer drain problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious customer drain problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-5 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Manager or Employee Drain)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-1.171	.241	1.14	.255	206
	Serious or very serious					29
Gross profits	Not at all or a little serious	-.407	.683	.37	.712	205
	Serious or very serious					29
Operating income	Not at all or a little serious	-.144	.885	-.08	.935	203
	Serious or very serious					29
Net income	Not at all or a little serious	-.779	.435	-.88	.381	202
	Serious or very serious					29
Profit rate						
Earnings per share	Not at all or a little serious	-.382	.701	-.37	.710	201
	Serious or very serious					27
Dividends per share	Not at all or a little serious	-.149	.881	-.23	.819	200
	Serious or very serious					27
Price/Earning ratio	Not at all or a little serious	-.525	.599	-.43	.670	192
	Serious or very serious					26
Return on total assets	Not at all or a little serious	-.857	.391	-.98	.328	192
	Serious or very serious					26

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious manager or employee drain problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious manager or employee drain problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-6 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Personnel Arrangements)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.643	.519	-1.01	.314	195
	Serious or very serious					40
Gross profits	Not at all or a little serious	-1.404	.160	-1.86	.064	195
	Serious or very serious					39
Operating income	Not at all or a little serious	-1.316	.188	-1.50	.136	193
	Serious or very serious					39
Net income	Not at all or a little serious	-1.895	.058	-1.98	.049	192
	Serious or very serious					39
Profit rate						
Earnings per share	Not at all or a little serious	-2.589	.009	-2.85	.005	189
	Serious or very serious					39
Dividends per share	Not at all or a little serious	-2.722	.006	-3.09	.002	189
	Serious or very serious					38
Price/Earning ratio	Not at all or a little serious	-1.356	.175	-1.37	.172	184
	Serious or very serious					34
Return on total assets	Not at all or a little serious	-2.399	.016	-2.51	.013	183
	Serious or very serious					35

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious personnel arrangements problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious personnel arrangements problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-7 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Shareholders against Bidding)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-.401	.688	-.17	.867	217
	Serious or very serious					18
Gross profits	Not at all or a little serious	-1.132	.257	-1.17	.245	217
	Serious or very serious					17
Operating income	Not at all or a little serious	-.959	.337	-1.20	.232	215
	Serious or very serious					17
Net income	Not at all or a little serious	-1.233	.217	-1.41	.160	214
	Serious or very serious					17
Profit rate						
Earnings per share	Not at all or a little serious	-1.056	.290	-1.14	.255	210
	Serious or very serious					17
Dividends per share	Not at all or a little serious	-1.483	.138	-1.53	.127	210
	Serious or very serious					16
Price/Earning ratio	Not at all or a little serious	-.477	.633	-.52	.601	203
	Serious or very serious					14
Return on total assets	Not at all or a little serious	-1.486	.137	-1.72	.087	203
	Serious or very serious					14

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious shareholders against bidding problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious shareholders against bidding problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-8 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Corporate Culture Differences)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-1.427	.153	1.31	.192	196
	Serious or very serious					39
Gross profits	Not at all or a little serious	-.540	.589	-.74	.460	196
	Serious or very serious					38
Operating income	Not at all or a little serious	-.118	.905	-.41	.685	194
	Serious or very serious					38
Net income	Not at all or a little serious	-.315	.752	-.56	.576	194
	Serious or very serious					37
Profit rate						
Earnings per share	Not at all or a little serious	-1.079	.280	-1.05	.295	192
	Serious or very serious					35
Dividends per share	Not at all or a little serious	-.995	.319	-1.10	.272	192
	Serious or very serious					34
Price/Earning ratio	Not at all or a little serious	-.741	.458	-.82	.416	184
	Serious or very serious					33
Return on total assets	Not at all or a little serious	-.794	.426	-1.07	.286	184
	Serious or very serious					33

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious corporate culture differences problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious corporate culture differences problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-9 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Litigation)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-1.956	.050	-1.83	.094	222
	Serious or very serious					12
Gross profits	Not at all or a little serious	-1.214	.224	-1.32	.214	221
	Serious or very serious					12
Operating income	Not at all or a little serious	-1.112	.266	-1.31	.192	219
	Serious or very serious					12
Net income	Not at all or a little serious	-1.167	.243	-1.36	.174	219
	Serious or very serious					11
Profit rate						
Earnings per share	Not at all or a little serious	-1.110	.266	-1.59	.114	216
	Serious or very serious					11
Dividends per share	Not at all or a little serious	-1.624	.103	-2.04	.043	215
	Serious or very serious					11
Price/Earning ratio	Not at all or a little serious	-.085	.931	-.10	.919	209
	Serious or very serious					9
Return on total assets	Not at all or a little serious	-.126	.899	-.12	.907	210
	Serious or very serious					8

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious litigation problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious litigation problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-10 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Raising Finance)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-2.422	.015	2.37	.019	216
	Serious or very serious					18
Gross profits	Not at all or a little serious	-.780	.435	.81	.421	215
	Serious or very serious					18
Operating income	Not at all or a little serious	-.173	.862	.26	.797	213
	Serious or very serious					18
Net income	Not at all or a little serious	-1.102	.270	1.09	.275	212
	Serious or very serious					18
Profit rate						
Earnings per share	Not at all or a little serious	-.415	.677	.23	.818	209
	Serious or very serious					18
Dividends per share	Not at all or a little serious	-.246	.805	-.50	.620	208
	Serious or very serious					18
Price/Earning ratio	Not at all or a little serious	-.278	.780	.12	.904	200
	Serious or very serious					18
Return on total assets	Not at all or a little serious	-.230	.817	-.46	.645	200
	Serious or very serious					18

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious raising finance problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or fairly serious or very serious raising finance problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.

Appendix 7-9-11 Mann-Whitney U - Wilcoxon Rank Sum W Test and T-test for Independent Acquiring Enterprise's Post-Transaction Performance by Transaction Process Problems (Government Regulations)

Post-transaction performance	Asset valuation problem	Z-value	2-Tail Sig.	T-value	2-Tail Sig.	Cases (No.)
Level of profit						
Net sales	Not at all or a little serious	-2.568	.010	2.69	.008	191
	Serious or very serious					42
Gross profits	Not at all or a little serious	-1.646	.099	1.69	.092	190
	Serious or very serious					42
Operating income	Not at all or a little serious	-.785	.431	.90	.370	189
	Serious or very serious					41
Net income	Not at all or a little serious	-.627	.530	.87	.385	188
	Serious or very serious					41
Profit rate						
Earnings per share	Not at all or a little serious	-.143	.885	.17	.863	186
	Serious or very serious					40
Dividends per share	Not at all or a little serious	-.030	.975	-.09	.930	185
	Serious or very serious					40
Price/Earning ratio	Not at all or a little serious	-.146	.883	-.35	.727	177
	Serious or very serious					40
Return on total assets	Not at all or a little serious	-.082	.933	-.02	.986	176
	Serious or very serious					41

$H_0 : \mu_{pn} = \mu_{ps}$

$H_1 : \mu_{pn} \neq \mu_{ps}$

where μ_{pn} = mean or median value of rating scale score, post-transaction performance p, not at all or a little serious government regulations problem

μ_{ps} = mean or median value of rating scale score, post-transaction performance p, serious or very serious government regulations problem

Source: Own calculations based on questionnaire survey in Taiwan, May-July 1996.